UNIVERSITY of NEVADA
RENO
CENTENNIAL YEAR
1874 · 1974

GENERAL CATALOG
1974 · 1975

Inquiries may be addressed to the appropriate person or office at

UNIVERSITY OF NEVADA, RENO
RENO, NEVADA 89507

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University of Nevada • Reno

Catalog

1974-75

University of Nevada • Reno Catalog Series

Volume LXVI No. 1

(Photo Courtesy of Summer School)

Table of Contents

	Page
University Terminology	4
University Calendar	9
Officers of the University	11
Calendar of Centennial Events	14
The Evolution of a Dream	15
About the University	21
Facilities for Study and Research	25
Admission Information	31
Regulations for Tuition Charges	39
Registration	41
Fees and Expenses	51
Student Personnel Program	55
Associated Students	67
Interdisciplinary and Special Programs	73
College of Agriculture	77
College of Arts and Science	87
College of Business Administration	113
College of Education	123
College of Engineering	131
School of Home Economics	139
School of Medical Sciences	143
School of Mines	147
School of Nursing	157
Graduate School	159
Course Offerings	171
University Staff	263
Index	277
Campus Map	Inside back cover

University Terminology

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

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.
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, nondegree student.
Graduate Standing	A regular, graduate, degree-seeking student.
Graduate Study	Work beyond the bachelor's degree, usually toward a master's or doctor's degree.
I.D. Card	Student 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 location.
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.
Undergraduate	A student who has not yet obtained the bachelor's degree.
Withdrawal	The act of officially leaving the University. Students also may drop individual courses without withdrawing from the University.

1974

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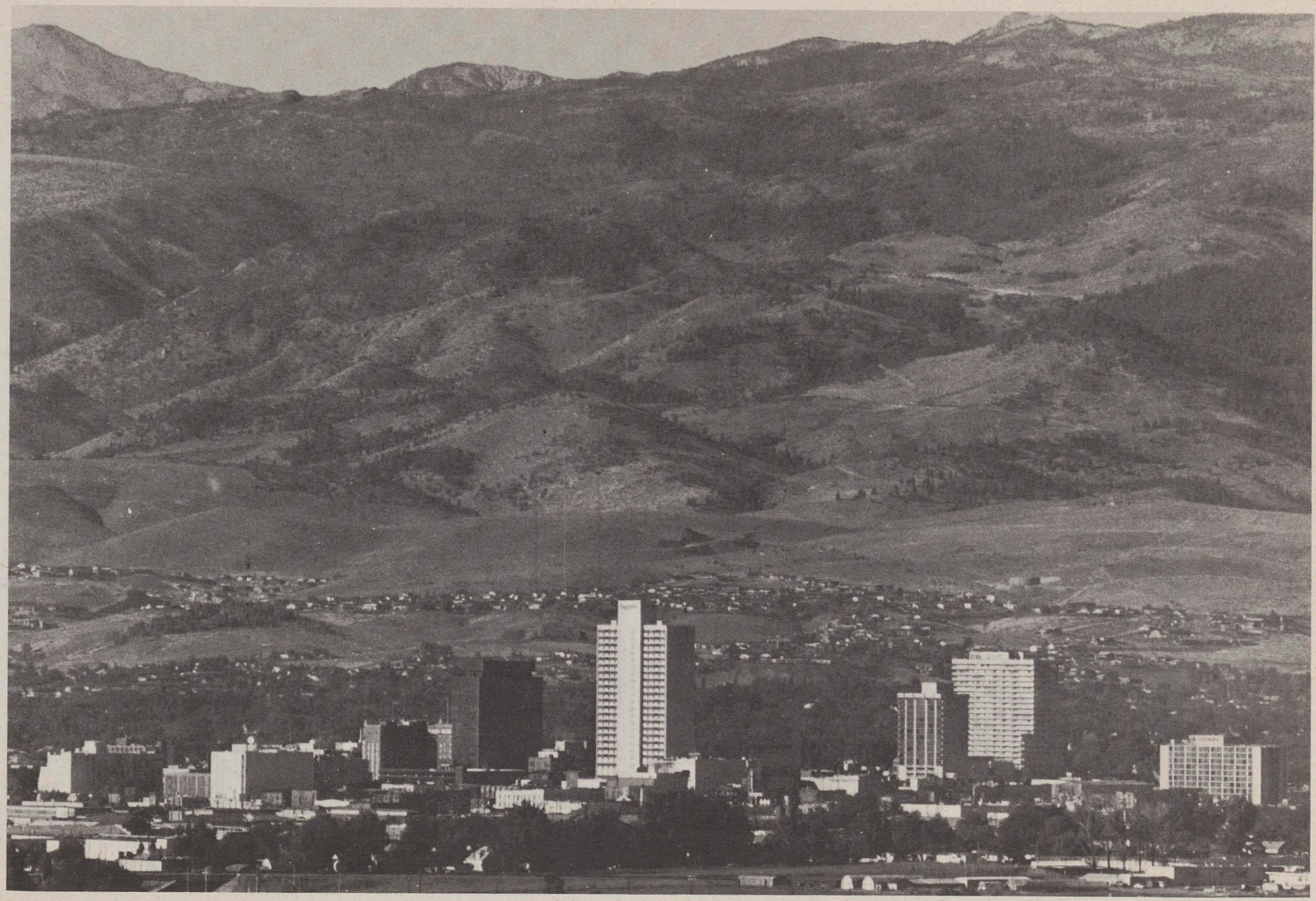


The Skyline of Reno

The University Calendar

Fall Semester 1974

Final date for filing:	
Application for admission	
Application for readmission following suspension	
Returning student application for registration materials	Monday, July 15
Distribution of unmailed registration packets begins	Monday, August 19
Semester begins. Residence halls open	Saturday, August 24
Orientation and testing new students	Sunday-Monday, August 25-26
Advisement for new and returning students	Tuesday-Wednesday, August 27-28
Registration (upper-division)	Thursday, August 29
Registration (lower-division)	Friday, August 30
Labor Day recess	Monday, September 2
Instruction begins	Tuesday, September 3
Final date for late registration and addition of courses	Wednesday, September 11
Applications for graduation filed with Registrar	Monday, September 16
Centennial Opening Convocation	Saturday, October 12
Homecoming	Saturday, October 12
Centennial Symposia	Tuesday-Thursday, October 15-17
Midsemester class lists filed with Registrar	Thursday, October 24
Veterans Day recess	Monday, October 28
Final date for dropping courses without grades	Tuesday, October 29
Nevada Day recess	Thursday, October 31
Final date for filing late application for graduation	Friday, November 1
Thanksgiving vacation	Thursday-Sunday, November 28-December 1
Final date for filing graduate examining committee reports	Friday, November 29
Final date for filing approved thesis or dissertation for binding	Friday, December 6
Instruction ends	Friday, December 20
Final grades filed with Registrar by 9 A.M. Semester ends	Monday, December 23

Spring Semester 1975

Final date for filing:	
Application for admission	
Application for readmission following suspension	
Returning student application for registration materials	Thursday, January 2
Distribution of unmailed registration packets begins	Monday, January 6
Semester begins. Residence halls open	Sunday, January 12
Orientation and testing new students	Monday, January 13
Advisement	Tuesday-Wednesday, January 14-15
Registration (upper-division)	Thursday, January 16
Registration (lower-division)	Friday, January 17
Instruction begins	Monday, January 20
Final date for late registration and addition of courses	Tuesday, January 28
Applications for graduation filed with Registrar	Friday, January 31
Washington's Birthday recess	Monday, February 17
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 22-31
Final date for filing graduate examining committee reports	Wednesday, April 23
Final date for filing approved thesis or dissertation for binding	Wednesday, April 30
Honors Convocation	Thursday, May 1
Mackay Day	Saturday, May 3
Instruction ends	Wednesday, May 14
Final grades filed with Registrar by 9 A.M.	Friday, May 16
Commencement. Semester ends	Saturday, May 24

Note: Vacation dates are inclusive.

1975 Summer Session Calendar

Final date for filing graduate admission credentials for first term ..... Friday, May 16
Registration for intersession 8:00 a.m.–5:00 p.m. in Registrar's office. Instruction begins ..... Tuesday, May 27
Registration for intersession closes 5:00 p.m. Last day to drop classes and receive a refund ..... Wednesday, May 28
Last day to drop intersession classes or withdraw from the University without a grade being recorded ..... Monday, June 2
Registration for first term 7:30-11:30 a.m. in gymnasium ..... Monday, June 9
Instruction begins 12:30 p.m. ..... Monday, June 9

Application for August graduation to be filed within first ten days; late fee applies through July 1.

Final grades for intersession due in Registrar's office 5:00 p.m. ..... Tuesday, June 10
Late registration for first term closes. Last day to add classes or change from audit to credit. 5:00 p.m. ..... Wednesday, June 11
Registration for special 6-week middle term 8:00 a.m.–5:00 p.m. in Registrar's office. Instruction begins ..... Monday, June 23
Last day to drop first term classes, change from credit to audit or withdraw from the University without a grade being recorded. Registration for middle term closes 5:00 p.m., last day to drop classes and receive a refund ..... Wednesday, June 25
Classes in session ..... Saturday, June 28
Final date for filing graduate admission credentials for second term ..... Monday, June 30
Final date for filing application for August graduation ..... Tuesday, July 1
Independence Day recess ..... Friday, July 4
First term instruction ends. Last day to drop middle term classes, change from credit to audit or withdraw from University without a grade being recorded ..... Friday, July 11
Registration for second term 7:30-11:30 a.m. in gymnasium ..... Monday, July 14
Instruction begins 12:30 p.m. ..... Monday, July 14
Final grades for first term due in Registrar's office 5:00 p.m. ..... Tuesday, July 15
Late registration for second term closes. Last day to add classes or change from audit to credit 5:00 p.m. ..... Wednesday, July 16
Final date for filing graduate examining committee reports ..... Friday, July 25
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
Middle term instruction ends ..... Thursday, July 31
Final date for filing approved thesis or dissertation for binding ..... Friday, August 1
Final grades for middle term, second term workshops and special programs terminating on or before August 1 due in Registrar's office 12:00 noon ..... Monday, August 4
Second term instruction ends ..... Friday, August 15
Final grades for second term due in Registrar's office 5:00 p.m. Summer session ends ..... Monday, August 18

Officers of the University

The Board of Regents

HON. FRED M. ANDERSON, M.D. ..... Reno

HON. JAMES L. BUCHANAN, II ..... Las Vegas

HON. HAROLD JACOBSEN ..... Carson City

HON. NEDRA JOYCE ..... Las Vegas

HON. JOSEPH KOHN ..... Las Vegas

HON. LOUIS E. LOMBARDI, M.D. ..... Reno

HON. WILLIAM W. MORRIS ..... Las Vegas

HON. MELVIN STENINGER ..... Elko

HON. HELEN R. THOMPSON ..... Las Vegas

Organization of the Board

HON. HAROLD JACOBSEN ..... Chairman
HON. HELEN R. THOMPSON ..... Vice Chairman
MRS. BONNIE M. SMOTONY ..... Secretary

University of Nevada System

Chancellor's Office

Neil D. Humphrey, Ed.D., Chancellor
K. Donald Jessup, M.S., Director, Institutional Studies and Budget
John J. Malone, Jr., Ph.D., Acting Director of Planning
Janet S. MacDonald, B.S., C.P.A., Director of Internal Audit
Harry Paul Wood, M.A., Architect/Facility Planner

Divisions of the University System

University of Nevada, Reno — James T. Anderson, Ph.D., Acting President
University of Nevada, Las Vegas — Donald H. Baepler, Ph.D., President
Desert Research Institute — John M. Ward, Ph.D., President
Community College Division — Charles R. Donnelly, Ph.D., President

Other Organizational Units of the System

University Press — Robert P. Laxalt, B.A., Director
Computing Center — Niels H. Anderson, M.B.A., Director

University of Nevada • Reno
Administrative Officers and Staff

James T. Anderson, Ph.D., P.E., Acting President and Vice President for Academic Affairs.
Arthur Baker III, Ph.D., Dean of Mackay School of Mines.
Roberta J. Barnes, M.A., Dean of Students.
Samuel M. Basta, Ed.D., Dean for Community Relations.
Dale W. Bohmont, Ph.D., Dean of the Max C. Fleischmann College of Agriculture.
Alex Boyd, M.Ed., Director of Upward Bound.
Charles R. Breese, Sr., M.S., P.E., Dean of College of Engineering.
Edmund J. Cain, Ed.D., Dean of the College of Education.
Kenneth J. Carpenter, M.A., Associate Director of Libraries.
Jack F. Clarke, Ph.D., Counselor in Counseling and Testing.
Richard V. Cotter, D.B.A., Associate Dean of the College of Business Administration.
Alex di C. Dandini, Ph.D., Marshal of the University.
Richard T. Dankworth, Ed.D., Director of Summer Session.
Alene R. Dickinson, Ed.D., Acting Dean of the Orvis School of Nursing.
James R. Firby, Ph.D., Assistant Dean of the Mackay School of Mines.
Robert M. Gorrell, Ph.D., Dean of the College of Arts and Science.
John A. Halvorson, M.Ed., Assistant Director of Admissions and School Relations.
M. Henry Hattori, B.B.A., Controller.
James E. Hess, Manager of Central Reproduction and Mail Service.
Robert Hill, B.A., Veterans Coordinator.
Douglas J. Jackson, M.A., Assistant Director of Financial Aid.
James M. Jeffers, Jr., University Purchasing Administrator II.
Robert D. Jeffers, M.Ed., Director of Personnel Services.
Carl W. Keeler, M.Ed., Assistant Dean of Students.
Robert G. Kinney, Ed.D., Associate Dean of Students.
Edgar Fox Kleiner, Ph.D., Assistant Dean of the College of Arts and Science.
Luella J. Lilly, Ph.D., Director of Women's Athletics.
C. Robert Locke, M.D., Director, Student Health Services.
Louis W. McHardy, M.S.W., Dean and Director of National Council of Juvenile Court Judges.
Harold G. Morehouse, M.L.S., Director of Libraries.
Thomas D. O'Brien, Ph.D., Dean of Graduate School and Research Coordinator.
Edward A. Olsen, Director of Information, News Service.
Fred L. Perriera, B.A., Assistant Dean of Students.
Edward L. Pine, C.E., P.E., Vice President for Business.
Donald G. Potter, Ed.D., Director of Audiovisual Communications.
William E. Rasmussen, M.Ed., Director of Graduate Placement and Financial Aid.
Margaret Rockenbeck, M.A., Counselor in Counseling and Testing.
Cecelia Mae St. John, M.Ed., Assistant Dean of Students.
Thomas J. Scully, M.D., Associate Dean of the School of Medical Sciences.
Jack B. Selbig, M.Ed., Director of Counseling and Testing, and Foreign Student Advisor.
Charles H. Seufferle, Ph.D., Associate Dean of the College of Agriculture.
Jack H. Shirley, Ed.D., Director of Admissions and Registrar.
George T. Smith, M.D., Dean of the School of Medical Sciences.
Harry L. Steinert, M.A., Assistant Registrar.
Ross Townsend, Jr., M.A., Director, Special Services.
Richard M. Trachok, M.A., Director of Intercollegiate Athletics.
Patricia A. Tripple, Ed.D., Dean of the Fleischmann School of Home Economics.
Ernst J. Watts, J.D., Dean of National College of the State Judiciary.
Robert C. Weems, Jr., Ph.D., Dean and Director of the College of Business Administration.
Charles V. Wells, Ph.D., Associate Dean of the College of Arts and Science.
Brian J. Whalen, B.S.C.E., P.E., Director of Physical Plant.
Robert G. Whittemore, Jr., Ed.D., Dean of General University Extension.
Benjamin M. Wofford, Ph.D., Associate Dean of the College of Business Administration.
Harry J. Wolf, M.Ed., Director of Affirmative Action and Director of Student Assistance.

Department and Division Chairmen

Accounting and Information Systems — Robert H. Schueler, M.B.A., Lecturer. (Acting)
Agricultural and Industrial Mechanics — Leo Herndon, Ed.D., Professor.
Agricultural and Resource Economics — Edmund R. Barmettler, Ph.D., Professor. (Acting)
Agricultural Communications Service — Elvin A. Powell, M.A., Specialist in Charge.
Animal Science — Verle R. Bohman, Ph.D., Professor.
Anthropology — Donald L. Hardesty, Ph.D., Assistant Professor.
Art — Howard Rosenberg, M.Ed., Associate Professor.
Behavioral Sciences — Paul R. Miller, M.D., Professor.
Biochemistry — Charles R. Heisler, Ph.D., Professor.
Biology — Hugh N. Mozingo, Ph.D., Professor.
Biomedical Sciences — L. Matthew Bach, Ph.D., Professor.
Chemical and Metallurgical Engineering — Ross W. Smith, Ph.D., Professor.
Chemistry — Rodney E. Harrington, Ph.D., Professor.
Civil Defense — Glen Martin, B.A., Coordinator.
Civil Engineering — Richard G. Orcutt, Ph.D., Professor.
Clinical Sciences — Thomas J. Scully, M.D., Professor.
Community Development — Harry H. Bradley, Sr., B.S., Lecturer.
Conferences and Institutes — Robert L. Kersey, B.S., Assistant Director.
Counseling and Guidance Personnel Services — John A. Bailey, Ed.D., Professor.
Criminal Justice — Kenneth Braunstein, M.A., Associate Professor.
Economics — Larry J. Larsen, Ph.D., Professor.
Educational Foundations — Gary L. Peltier, Ph.D., Associate Professor.
Educational Support and Communications — Dan L. Oppleman, Ed.D., Professor.
Electrical Engineering — Robert A. Manhart, Ph.D., Professor.
Elementary and Special Education — Kenneth W. Johns, Ed.D., Associate Professor.
Engineering Technologies — William W. Baker, M.S., Assistant Professor.
English — Robert D. Harvey, Ph.D., Associate Professor.
Evening and Off-Campus — Roland Dick, M.A., Director.
Foreign Languages and Literatures — Eugene K. Grotegut, Ph.D., Professor.

Geology-Geography — Malcolm Hibbard, Ph.D., Professor.
History — Wilbur S. Shepperson, Ph.D., Professor.
Independent Study — Grace Donehower, M.A., Director.
Journalism — Theodore E. Conover, M.A., Professor.
Managerial Sciences — Edward A. Zane, Ph.D., Professor
Mathematics — E. Maurice Beesley, Ph.D., Professor.
Mechanical Engineering — William Van Tassel, M.S., Professor. (Acting)
Military Science — Alexander Lemberes, Colonel, M.B.A., Professor.
Mining Engineering — Harve P. Nelson, Ph.D., Professor.
Music — Merle E. Puffer, M.M., Professor.
Philosophy — John C. Kelly, Ph.D., Assistant Professor.
Physical Education — Robert J. Laughter, Ph.D., Professor.
Physics — James K. Kliwer, Ph.D., Associate Professor.
Plant, Soil and Water Science — Ralph A. Young, Ph.D., Professor.
Political Science — Don W. Driggs, Ph.D., Professor.
Psychology — William P. Wallace, Ph.D., Associate Professor.
Renewable Natural Resources — Elwood L. Miller, Ph.D., Assistant Professor.
Research — Richard H. Licata, Ph.D., Professor.
School Administration — Thomas T. Tucker, Jr., Ed.D., Professor.
Secondary Education — Arthur T. Phelps, Ed.D., Professor.
Social Services and Corrections — Barbara W. Larsen, M.S.W., Associate Professor.
Sociology — James T. Richardson, Ph.D., Associate Professor.
Speech and Theatre — James L. Owen, Ph.D., Associate Professor.

Research and Public Services

Dale W. Bohmont, Ph.D., Director, Experiment Station and Cooperative Extension Service.
Ray E. Ely, Ph.D., Associate Director, Agricultural Experiment Station.
Robert Locke, M.D., Director, Student Health Services.
Elmer R. Rusco, Ph.D., Director of Bureau of Governmental Research.
John H. Schilling, M.S., Director, Nevada Bureau of Mines and Geology and Nevada Mining Analytical Laboratory.
Joseph F. Stein, Ph.D., Associate Director, Cooperative Extension Service.
Robert C. Weems, Jr., Ph.D., Director, Bureau of Business and Economic Research.
Benjamin M. Wofford, Ph.D., Associate Director of the Bureau of Business and Economic Research.

Auxiliary Services

Alumni Association — Larry Struve, President.
Associated Students — Crispian Cufflin, Business Manager.

The Quad

Calendar of Centennial Events

Centennial Exhibit, Nevada State Fair, September 4-9, 1974
Centennial Homecoming Week, October 7-12, 1974
Centennial Opening Convocation, October 12, 1974
Symposium — Albert / Emily Hilliard Committee, October 15-17, 1974
Centennial Float, Nevada Day Parade, October 31, 1974
*Nevada Repertory Company - University Theatre
"100 Years of Theatre in Nevada," October-November, 1974
*University of Nevada Birthday Party, Carson City, February, 1975
University of Nevada Charter Day, March 7, 1975
Mackay Week, April 28 to May 3, 1975
Centennial Commencement Convocation, May 24, 1975

Interspersed between October 17, 1974, and May 24, 1975, will be a series of lectures, symposia, colloquia, special events, and various other activities and program, details of which will be announced at a later date.

*Specific dates to be determined.

The Evolution of a Dream

"Evolution of a Dream: 1874-1974-2074" is the theme which has been given to the University of Nevada Centennial which will be officially marked this year. In partial observance of this notable occasion, the University of Nevada Press will publish "The University of Nevada: A Centennial History", *by James W. Hulse, professor of history at the Reno campus. The following passages, submitted by Dr. Hulse, tend to summarize the new book, and at the same time capsulize the evolution of higher education in Nevada during the past century.*

A one hundred year experiment in higher education is being celebrated in Nevada this year with the centennial observances of the University of Nevada. Founded in Elko in 1874, the University will mark the end of its first century in the autumn of this year, with major activities planned for the Reno campus commencing October 12.

Nevada's development in higher education draws upon three main traditions and sources of inspiration. The first is the European university tradition, stretching back to the middle ages. In places such as Bologna, Paris, and Oxford the prototypes of modern universities emerged and the procedures which were established in that era were to greatly influence modern academic institutions. Thomas Jefferson, founder of the University of Virginia in the 1820s, was the first American to seriously attempt development of this university concept in this country.

The second tradition on which American academicians have drawn is that of the American college of the pre-Civil War period. As the wilderness was tamed and the American frontier expanded, civic leaders frequently expressed the desire for higher forms of civilization and, as a means to that end, established small academies to impart religious training and education in the classics. By the mid-1800s, hundreds of these frontier colleges had been formed.

Their collapse, however, was almost as rapid as their founding. There was widespread feelings that these facilities were not meeting the needs of a rapidly growing nation.

Early in the Civil War, a senator from Vermont named Justin Morrill secured passage of a new law in Congress which became known as the Morrill Land Grant Act. This serves as the third main strand of the education tradition in Nevada.

Morrill's premise was that institutions of higher learning in America should offer training in agriculture and the "mechanic arts" as well as in the classics and liberal arts. To promote this theory the law, passed in 1862, gave each state thousands of acres of land which were to be sold to establish endowment funds, earmarked for the creation of such training centers.

Nevada entered the Union as a state only two years after the Morrill Act became law, and the men who drafted the Constitution incorporated the essential language of the law in the state's fundamental document. The land grant did not produce money very rapidly in arid Nevada, however, and the legislature for many years could neither agree upon a site nor find the necessary funds to create its university.

Nevada's population was small by comparison with other states, and most of its rawboned citizens, living in such mining camps as Virginia City, Austin, Eureka, or Pioche had little interest in the educational tradition or the new collegiate concept.

Finally, in 1873, nearly a decade after the Constitution had been drafted, the legislature authorized the establishment of a University Preparatory School in Elko. It was obvious that Nevada did not have enough students who were prepared for university training, and it lacked the academic talent and facilities for higher education. But olitical leaders, fearful of losing the Morrill Land Grant money if they did not make a beginning, used the tactic of establishing a kind of secondary school which, it was assumed, would prepare students for the higher learning.

Because most of the state institutions established prior to 1873 had been located in western Nevada, near Carson City and Reno, the legislature chose (with effective urging from Governor L.R. Bradley, a resident of Elko) to open the school nearly three hundred miles distant from the main population centers. D.R. Sessions, a Princeton graduate, was selected by the Regents as the first principal, citizens of Elko raised money for the necessary building, and the first class of seven students met on October 12, 1874.

The University Preparatory School was controversial almost from the beginning. It never attracted significant numbers of students from

Opened October 12, 1874, this Elko structure marked the beginning of the University.

outside the Elko area and in eleven years of operation, its enrollment never exceeded thirty-five students at one time.

In addition, because Sessions had received his education in the classical manner, he was not offering training in "agriculture and the mechanic arts," and Nevada was technically not in compliance with the Morrill Land Grant Act.

For eleven years, until 1885, the little school struggled. Sessions left after the fourth year, and a parade of principals followed — almost at the rate of one per year. There were brief efforts to offer classes in assaying and other fields related to mining, but enrollment was disappointing.

Elko was only a whistle-stop on the railroad, a town of about one thousand people with none of the intellectual resources required by a college or university. It was often scorned by other Nevada communities, so the legislature, deciding a mistake had been made, voted to move the school to Reno.

In 1885, the Regents selected a site on a hill north of Reno for the second try and money was acquired for the first permanent building, to be named Morrill Hall. Although it began essentially as a preparatory school, like its predecessor in Elko, reorganization was accomplished in 1887 and the first college-level classes were introduced.

Accomplishing this modest beginning was a faculty of two, consisting of Leroy Brown, an Ohio educator who also served as the institution's first president, and Miss Hannah Clapp, a Carson City school teacher with a wide range of talents.

While the legislature was more disposed to appropriate funds to the University in Reno, as witnessed by the authorization of a normal school for the training of elementary school teachers, the land grant funds still provided the bulk of operating capital available to the fledgling institution. This added state support, coupled with new land grant legislation passed in Washington which provided added federal support, served to put the Reno operation on a much firmer foundation than that which had been provided in Elko.

There was irony in the early Reno years, however, because for a decade after moving the institution to the state's population center, Nevada still offered almost no training in agriculture, the mechanic arts, or mining subjects. While most of the funding available still came from the land grant legislation, most of the early faculty mem-

bers — their number had increased to ten by 1894 — had been schooled, like Sessions, in the old manner of the liberal arts colleges. Compliance with the federal legislation was still questionable.

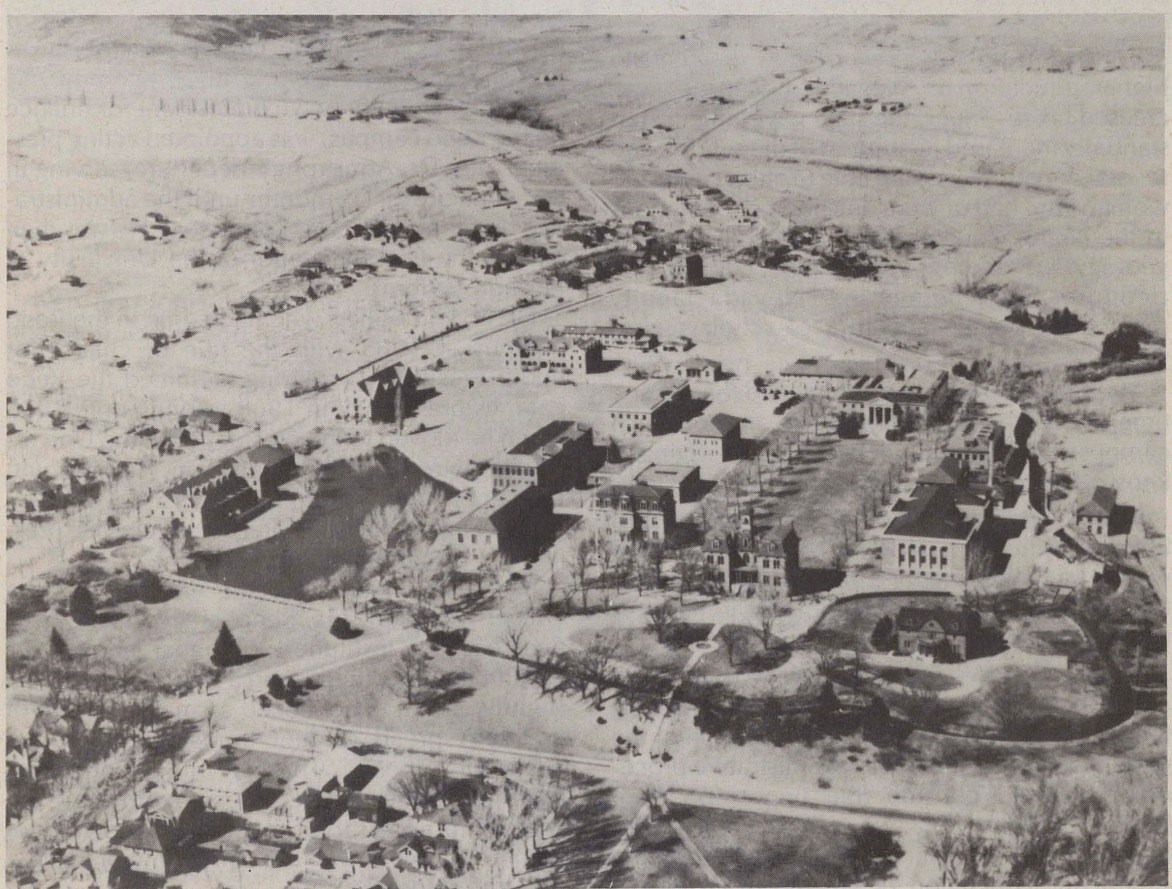
The man who gave the young University the level of leadership necessary to meet its responsibilities under the Morrill legislation and who also defined the university-level ideal for Nevadans was Joseph E. Stubbs. An Ohio-trained classicist, he served as president from 1894 until his death in 1914. No person was more important in the early history of the institution, for he attracted several talented faculty members, managed the first major gifts received by the school, and encouraged the faculty to assume research and public service functions normally associated with a university.

It was midway through the presidency of Dr. Stubbs when the family of John W. Mackay, one of the principals in Virginia City's famed Big Bonanza, began making its generous gifts to the institution. Mackay's widow and his son, Clarence, established the Mackay School of Mines, which became one of the most prestigious branches of the University in the early 1900s, and a further endowment financed an athletic field for the school.

Among the people who joined the faculty during the Stubbs administration and who received considerable recognition in academic circles beyond Nevada were Dr. James E. Church, a professor of classics who became one of the nation's leading snow scientists; Peter Fransden, a biologist who trained scores of students who later became prominent in the medical profession; Jeanne E. Wier, professor of history and founder of the Nevada Historical Society; and James G. Scrugham, founder of the College of Engineering and later a Nevada governor, congressman, and senator.

A university may be distinguished from a college by the reputation of its faculty, the level of its research, and the impact of its work beyond the borders of the state or community it serves. The University of Nevada had taken the first steps

The Reno campus in the 1930s.
(Photo courtesy of Nevada Historical Society)



toward becoming a university in the fullest sense of the word by the time of Stubbs' death in 1914, but progress thereafter was to be slow. The institution went through several years of political turmoil and its development was further interrupted by the events of World War I. Its faculty and student body grew in the 1920s and 1930s, but funding from the state did not increase proportionately.

Dr. Walter E. Clark, a former economics professor in New York City, served as president of the University from 1918 until 1938, but for many of those years the institution "marked time," to use Dr. Clark's own summary. The state government added no significant new facilities and the years of the Great Depression brought a curtailment of programs.

Only additional gifts from Clarence Mackay and the financing of a library from private funds made modest expansion possible during this era.

Following Dr. Clark's retirement, the University experienced the reduction of programs caused by World War II, the "veterans" boom of the late 1940s, and the uncertainty occasioned by five different presidencies in fewer than fifteen years.

The 1950s provided several new elements to higher education in Nevada. Because of increased tax revenues, the state government substantially increased its support of the school, and several departments were able to attract men and women who had or were developing reputations in the larger academic world. In such fields as geology, psychology, sociology, English, agriculture, and engineering, Nevada faculty members won the attention of scholars elsewhere.

More new facilities were provided than at any time in the state's earlier history, and a branch campus was created in Las Vegas, originally known as Nevada Southern University.

The University, however, went through one of its most difficult periods in that era because it was to be the setting for a significant confrontation between academic freedom and administrative responsibility.

Dr. Minard W. Stout, president from 1952 until 1957, was important as a catalyst in calling the University's problems to the attention of the people of the state, but his administrative procedures fostered considerable opposition from faculty, students, and Nevada residents. Ultimately his administration was censured by the American Association of University Professors and a legislative investigation led to his dismissal.

In retrospect, the 1950s appear to have been a crucial decade in the institution's history. It emerged with the principles of academic freedom strengthened by court decrees and Regents' policies, and several units of the institution embarked on programs of research and graduate training which would have done credit to any university.

Under the presidency of Dr. Charles J. Armstrong from 1958 through 1967, the Las Vegas campus came of age, developing a four-year baccalaureate program and graduate offerings. The Desert Research Institute, financing and attracting major scientific projects to Nevada, came into existence in 1959, and during the Armstrong period the University established an academic press, offered doctoral degrees in several fields, and more than doubled its course offerings to students.

It was after Dr. Armstrong's departure that an administrative reorganization resulted in establishment of the University of Nevada System with four units by 1969 — the University of Nevada, Reno, the renamed University of Nevada, Las Vegas, the Desert Research Institute, and the Community College Division.

Neil D. Humphrey, vice president for finance on the Reno campus, was appointed acting president after Dr. Armstrong's departure, serving in that capacity for six months until the administrative reorganization was completed. He was then named the first chancellor of the University of Nevada System.

Dr. N. Edd Miller, who had come to the Reno campus in 1965 with the title of chancellor under President Armstrong, assumed the Reno campus presidency in 1968, serving until 1973 when he moved to the presidency of the University of Maine at Portland-Gorham. At this point, Dr. James T. Anderson, former dean of the College of Engineering and later academic vice president, was named acting president.

In the late 1960s and the early 1970s, the University of Nevada, Reno, shared the experience of many institutions of higher learning. Its enrollment growth reached a peak and declined slightly, and it experienced a small measure of the widespread student unrest that troubled academic America. Through this period, however, Dr. Miller's quiet strength provided the leadership necessary to maintain the dignity of administration as well as the freedom of the faculty and student.

The humanities building on the University of Nevada, Las Vegas, campus.

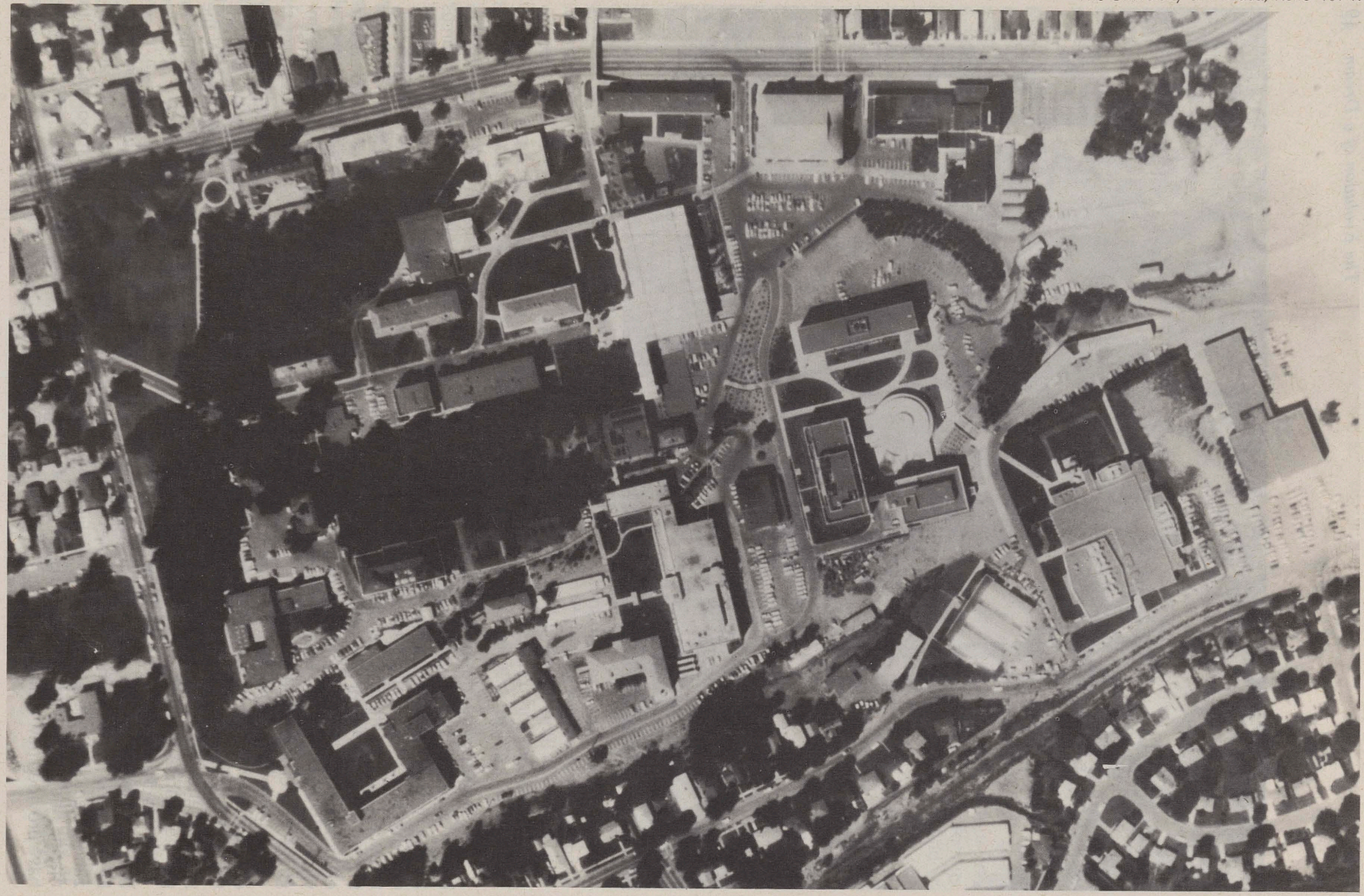
New developments during this period came in health science and psychology. A two-year School of Medical Sciences was established and offerings in several health-related fields were introduced, along with novel principles of instruction. In the Department of Psychology, researchers brought the University international attention with their success at teaching American sign language to a chimpanzee.

The range of the University's work has been enlarged in the past twenty years not only through increased support from state and federal governments but by a score of major gifts from private sources as well.

The Mackay gifts of the early periods have been exceeded by a series of grants from the Fleischmann Foundation of Nevada, the organization created by the late Major Max C. Fleischmann, once a Nevada resident. These grants have provided new buildings for agricultural and home economics research and instruction, an atmospherium-planetarium, a water resources facility, and numerous other campus improvements. Howard Hughes, the retiring industrialist, has provided significant funding for the School of Medical Sciences, and a host of Nevadans and former Nevadans have made gifts, bequests, or predesignations which will hold long range importance to the institution.

Thousands of smaller gifts and a reinvigorated Alumni Association have provided the University with advantages and possibilities in the 1960s and 1970s which have been lacking in earlier decades.

And while the process of building a true University has well advanced in the 1970s, it is still underway, and the dream which took shape with the framing of the Constitution continues to evolve.



The University of Nevada, Reno–1974.

University of Nevada • Reno

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, sex, or social status. 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 of Nevada also has an important responsibility to serve society by investigating and discussing problems of the past, the present, and the future in an effort to facilitate intellectual, political, economic, and social growth. To meet this responsibility the University serves as a repository of knowledge as well as a center of independent inquiry and critical thinking.

The University System

The University of Nevada, Reno, is a part of the University of Nevada System. The main campus is located on rolling hills north of the main business district overlooking the picturesque expanses of the Truckee Meadow.

A blend of the old and the new, the main 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 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.

Reno, a city of approximately 100,000, is bounded on the west by the pine-covered Sierra Nevada Mountains, and on the east by desert. Its climate is cool and dry, and is marked by the full pageant of the seasons.

A mixture of both the metropolitan and the quietly provincial, the city is noted on the one hand for its fashionable hotels and tourist attractions, and on the other for its beautiful parks which rim 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.

The University of Nevada, Las Vegas, a coordinate institution of the University system, is near the metropolitan center of that southern Nevada city.

The University Today

In its long history as a functioning institution of higher education, the University of Nevada, Reno, 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 except Medical Sciences. Additional instructional units include General University Extension and Summer School.

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.

Its History

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 Reno in 1887.

The Southern Regional Division at Las Vegas was first conceived in 1951, and in 1963 was given degree-granting status in several areas of study. The institution was officially named Nevada Southern University in 1965 and was renamed University of Nevada, Las Vegas, in 1969.

Accreditation

The University of Nevada, Reno, 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. Its most recent approval by the Northwest Association came in 1968. The University of Nevada, Las Vegas, received accreditation by the Northwest Association in 1964.

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 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.

Educational Opportunities

The University offers major fields of study leading to associate, baccalaureate, and advanced degrees through 51 academic departments in the various schools and colleges as follows:

Agriculture: Agriculture (includes options in general agriculture, journalism, and pest control), agricultural and resource economics, animal science (option in preveterinary science), biochemistry*, industrial mechanics (options in agricultural mechanics and agricultural education), pest control*, plant, soil, and water science (option in crops and soils science), renewable natural resources (options in forestry, game management, range management, recreation area management, and watershed management).

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

Arts and Science: American civilization, anthropology, art, atmospheric physics*, biochemistry*, biology, botany, chemistry, criminal justice, English, foreign affairs, French, German, history, journalism, mathematics, music, philosophy, physical education, physics, political science, prelegal, psychology, social psychology, social services and corrections, sociology, Spanish, speech and theatre, teaching of English*, 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 foundations*, elementary education, English, French, German, health education, history, industrial education, journalism, kindergarten-primary, mathematics, music, physical education, physical sciences, physics, political science, secondary education, school administration*, social studies, Spanish, special education, and speech and theatre.

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

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

Associate degree programs include electronics technology and engineering design technology.

Home Economics: Home economics*, home economics business, home economics extension, home economics education, home economics communications, child development and family life, fashion merchandising, food and nutrition, shelter and environment.

Associate degree programs include fashion trades and prekindergarten education.

Medical Sciences: Medical sciences, medical technology, predental, premedical, prepharmacy, and speech pathology and audiology.*

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

Nursing: Health education, nursing, and prephysical therapy.

Graduate: The master's degree is offered in most areas of study. Doctoral programs are offered in biochemistry, biology, chemistry, engineering, English, geochemistry, geology and related earth sciences, geophysics, history, hydrology and hydrogeology, physics, political science, psychology, and social psychology.

*Graduate majors only.

Interdisciplinary and Special Programs

There are several interdisciplinary and special programs offered to include Committee on the Philosophy of Inquiry (C.O.P.I.), Environmental Studies, Ethnic Studies, Health Sciences, History and Social Theory, Honors Study, National Student Exchange Program within the United States, 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 individual schools and colleges.

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 two-week intersession 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 non-degree 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 19 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 concerning Summer Session write to Director of Summer Session.

Alumni Association

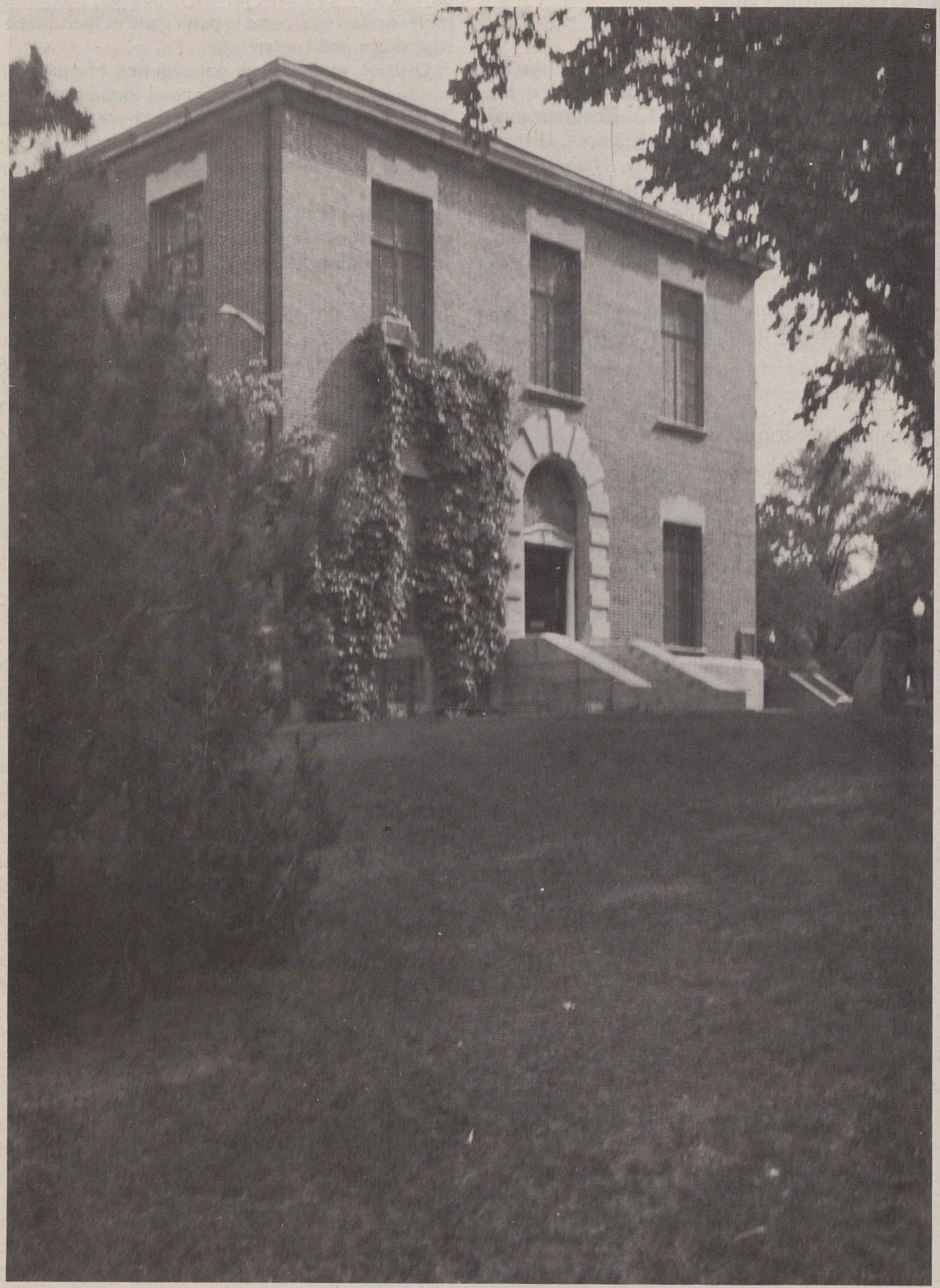
The University of Nevada Alumni Association, organized in 1895, encourages a lifelong relationship between alumni and their university, and works to promote the welfare of the institution.

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 *Alumni News*, is distributed to members six times each year.

Officers and Executive Committee members are elected annually at the 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.



Clark Administration Building

Facilities for Study and Research

The Reno campus of the University of Nevada consists of 203 acres occupied by 55 major buildings. The Stead campus, eight miles north of Reno, has 35 major buildings on 330 acres.

Each college, school, and service area of the University maintains a variety of well-equipped facilities to aid the students during their college careers.

Libraries

The library containing 466,000 volumes, 778,000 microforms, 4,400 current periodicals, and large collections of government publications and manuscripts is centered in the Noble H. Getchell Library building which stands in the middle of the campus. There are also five branch libraries: the Mines Library in the Mackay School of Mines, 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, and the Desert Research Institute Library at the Stead Campus.

The main library has open stacks except for special collections, government publications, reserve, and serials arranged on three floors according to classification numbers. Undergraduates may withdraw most books for two weeks and periodicals for three days. Weekday hours during regular sessions are 8 a.m. to 10:30 p.m., with shorter hours during weekends, vacations, and summer sessions. A list of hours is published and is also posted at the main entrance. Electrostatic copying equipment is available.

Among the library's extensive collections are the Nevada and the West Collection, the Modern Authors Collection, the Basque Collection, Robert Burns, Samuel Johnson, and Mark Twain collections, and the Education Collection. In addition, the Library of the National College of the State Judiciary is located on the Reno campus. The University library is the Nevada regional depository for federal and United Nations documents.

Audiovisual Communications Center

Audiovisual Communications 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 are available in 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.

The center provides appropriate information for faculty, staff, and students and is located on the ground floor of the new Education Building.

Special Facilities

All colleges and schools of the University maintain well-equipped laboratories in support of instruction and research. Facilities deserving special mention include the nuclear physics laboratory, the vacuum physics laboratory, and the foreign language laboratory.

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 geology.

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.

Public Service and Research Divisions

General University Extension

Through General University Extension postsecondary educational opportunities are extended to the people of the State of Nevada who wish to continue their education.

Any individual who can present evidence of high school graduation may register as a Nondegree student in General University Extension for a maximum of 6 semester credits (or equivalent) of classroom instruction in one semester without being officially admitted to the University.

In addition, a nongraduate over **nineteen** years of age who has been out of high school for one full year

or more may also register as a Nondegree student providing the individual's high school class has graduated.

General University Extension is made up of the following divisions: Civil Defense Extension Program, Community Development, Conferences and Institutes Division, Evening and Off-Campus, and Independent Study. In addition, the Aviation Instruction, Personnel Development, and State Fire Service Training Programs are educational services administered by General University Extension.

Civil Defense Training

Preparation for natural disasters and the orderly utilization of resources in time of emergencies is stressed in the Planning and Operations I and II courses; both are conducted for local governmental officials and their assistants. In addition, Civil Defense training is conducted throughout the State and consists of conferences for public officials and for industry; instructor training courses in Radiological Monitoring and Shelter Management; and Radiological Defense Officers and Civil Defense Management courses.

Civil Defense courses are available for school teachers and administrators in Emergency Preparedness. These courses are designed to support the local school district's emergency preparedness action guides.

Community Development

Community Development, financially possible through funds available under Title I of the Higher Education Act of 1965, is an educational program or 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 Division

The Conferences and Institutes Division provides educational programs and services for the individual chiefly upon the conclusion of formal schooling. This is done through conferences, institutes, workshops, and noncredit courses which are an essential part of its total effort in providing a complete educational program for its citizens.

The Stead Conference Center, the University housing and dining facilities at the Stead campus, and the aviation instruction program are coordinated by the division.

Evening and Off-Campus Programs

A wide variety of university credit courses are offered in the evening for persons wishing to continue their education on a part-time basis. These are now offered by the departments as *Extended Day* courses. Any reference or inquiry should be directed to the departments involved.

Off-Campus Programs: Educational opportunities are offered at locations throughout the State of Nevada where sufficient numbers of teachers and people of the communities are interested. These may be credit or noncredit classes or other types of programs, depending on the needs of the group. Such programs are offered in the evening, on the weekend, or during the summer as requested.

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

Independent Study Division

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 division. Numerous college-level, as well as a few college-preparatory, courses are available through this program. Applications for enrollment in independent study 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. Independent study 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 their educational goals under this program.

While one course at a time is the recommended load, students may enroll in a maximum of two courses simultaneously. Nondegree students may enroll in independent study courses in addition to the 6 semester credits or equivalent of classroom instruction.

A maximum of 60 semester credits earned in acceptable independent study courses completed through a regionally accredited correspondence division (including USAFI) 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 the Independent Study Division, General University Extension.

Aviation Instruction

Aviation instruction is provided through the Continuing Education Division. Courses are offered in an approved pilot school with the following ratings: Private Pilot's License, Commercial License, Instrument Flying School, Certified Flight Instructor School and Flight Instructor, Instrument. Special advanced ground school instruction is also offered: private pilot, commercial pilot, instrument flying school-fixed wing, certified flying school-fixed wing and helicopter, flight instructor, instrument-fixed wing, commercial add-on-helicopter and the helicopter external loads. Special advanced ground school instruction is also offered. Additional courses in multi-engine and aerial application-fixed wing and helicopter will soon be added to the course offerings.

This program is approved by the Federal Aviation Agency and students are eligible for Veterans Administration benefits for all courses beyond the private license.

Personnel Development Program

This program is administered in cooperation with the Vocational-Technical and Adult Branch of the State Department of Education and the State Personnel Division. 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

General University Extension is sponsoring 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.

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.

Financial support of the station comes from State, federal, and grant funds. Federal funds are appropriated for the cooperative research programs under the Hatch and McIntire Stennis acts to carry out an agricultural research program to promote the efficient production, marketing, distribution, and utilization of agricultural products. Station personnel conduct scientific investigations of arid-land agricultural and community development resources to insure a stable and productive agriculture for the future through wise management of natural resources. These include problems arising from soil conditions, animal disease, internal parasites of animals, production and marketing of agricultural products, insect pests, plant diseases, forest 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 in agriculture, home economics, youth, community resource development, and other related subjects to residents of Nevada.

The number of people requesting and participating in the Cooperative Extension 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 four-

teen counties constitute the organizational structure of the Cooperative Extension Service. The staff, working with local citizens and groups, plan and carry out informal educational programs to meet the local situation and needs.

The extension offices of the agents located throughout the State serve as a local campus of the University and provide citizens information about University programs.

Cooperative 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.

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 engages in studies relative to the economic development of the State and its adjoining regions and provides a laboratory for students and faculty members.

Bureau of Governmental Research

The Bureau of Governmental Research serves as a research and service arm of the Department of Political Science, College of Arts and Science. At the present time it has three major functions: (1) providing opportunities for staff members and students to engage in research projects designed to advance the understanding of the governmental process, (2) gathering information concerning State and local governments in Nevada and elsewhere, and (3) assisting State and local agencies in the solving of particular problems of public affairs.

Computing Center

The Computing Center is organized to serve the University of Nevada System and all of its divisions. The Computing Center is equipped with a third generation computer which is located in the Water Resources Building and a remote batch terminal located at the University of Nevada, Las Vegas. The computer system provides for batch processing as well as time sharing. Terminals located on the University of Nevada, Reno, campus and the University of Nevada, Las Vegas, campus are linked to the computer for time sharing purposes. The Computing Center is responsible for providing equipment and consultant services which support the growth of educational, research, administrative, and public service computer uses.

Nevada Mining Analytical Laboratory

The Nevada Mining Analytical Laboratory is one of the public service divisions 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.

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 Nevada Bureau of Mines and Geology 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.

State and 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, Region II, which comprises the geographical area of Nevada and California and serves as the office for technical direction of ac-

tivities at the Metallurgy Research Laboratory, Boulder City, Nevada, and the Thermodynamic Research Laboratory, Berkeley, California.

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

Desert Research Institute

The Desert Research Institute is a division of the University of Nevada System 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 Fleischmann Foundation of Nevada, the largest single supporter of the institute's program over the past ten years. The institute is funded largely by gifts, grants, and contracts from private and public research supporting agencies.

Organizationally, the president of the institute is responsible to the Chancellor of the University System and the institute is active on all campuses.

Facilities of the institute include the Laboratory of Atmospheric Physics, the Laboratory of Desert Biology, the Western Studies Center, the Center for Water Resources Research, the Laboratory of Environmental Patho-Physiology, and the Charles and Henriette Fleischmann Atmospherium-Planetarium. Offices are located at the Stead campus at Reno, and at Boulder City, Nevada.

The institute's research programs are statewide and emphasize studies which are particularly appropriate to Nevada, primarily arid lands research.

The Center for Water Resources Research is one of fifty-one 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 studies include water quality, hydrogeology, social and economic aspects of water resources, hydrogeochemistry, and systems analysis.

Beginning in 1960, the Laboratory of Atmospheric Physics has become one of the world's largest and most competent groups in its field. Its many studies include the environment of the atmosphere, precipitation, air pollution, solar energy, and cloud physics. The laboratory also conducts large-scale programs in weather modification sponsored by the Bureau of Reclamation of the U.S. Department of the Interior.

The Laboratory of Desert Biology does ecological research in arid and semiarid biomes. Other studies include the effects of various land treatments on the overall soil ecology, ant studies, and on fungi in desert soils and their role in agriculture.

The Western Studies Center concerns itself with archeological and anthropological research in Nevada and ethnic studies including investigations on Basques and American Indians, and socio-economic analyses.

The Laboratory of Environmental Patho-Physiology conducts studies on the adaptation of mammals to harsh environments.

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

National College of the State Judiciary

The University of Nevada is the academic home for the National College of the State Judiciary. This institution has the high purpose of improving the administration of justice by providing a program of continuing education for the nation's trial judiciary. Intensive four-week courses of study are conducted each summer for judges of courts of general jurisdiction.

The nationa college holds courses on a year around basis and brings approximately 1,500 judges to the campus each year. Over 50 percent of the trial judges of the nation are alumni of this institution.

In October 1971, the Judicial College moved into a new 30,000 square foot building located in the northeast section of the campus.

The college's law library contains more than 32,000 volumes and is available to the other departments of the University.

The college, an activity of the American Bar Association Judicial Administration Division, is funded by the Max C. Fleischmann Foundation, the John A. McCarthy Foundation, the American Bar Endowment, and Law Enforcement Assistance Administration.

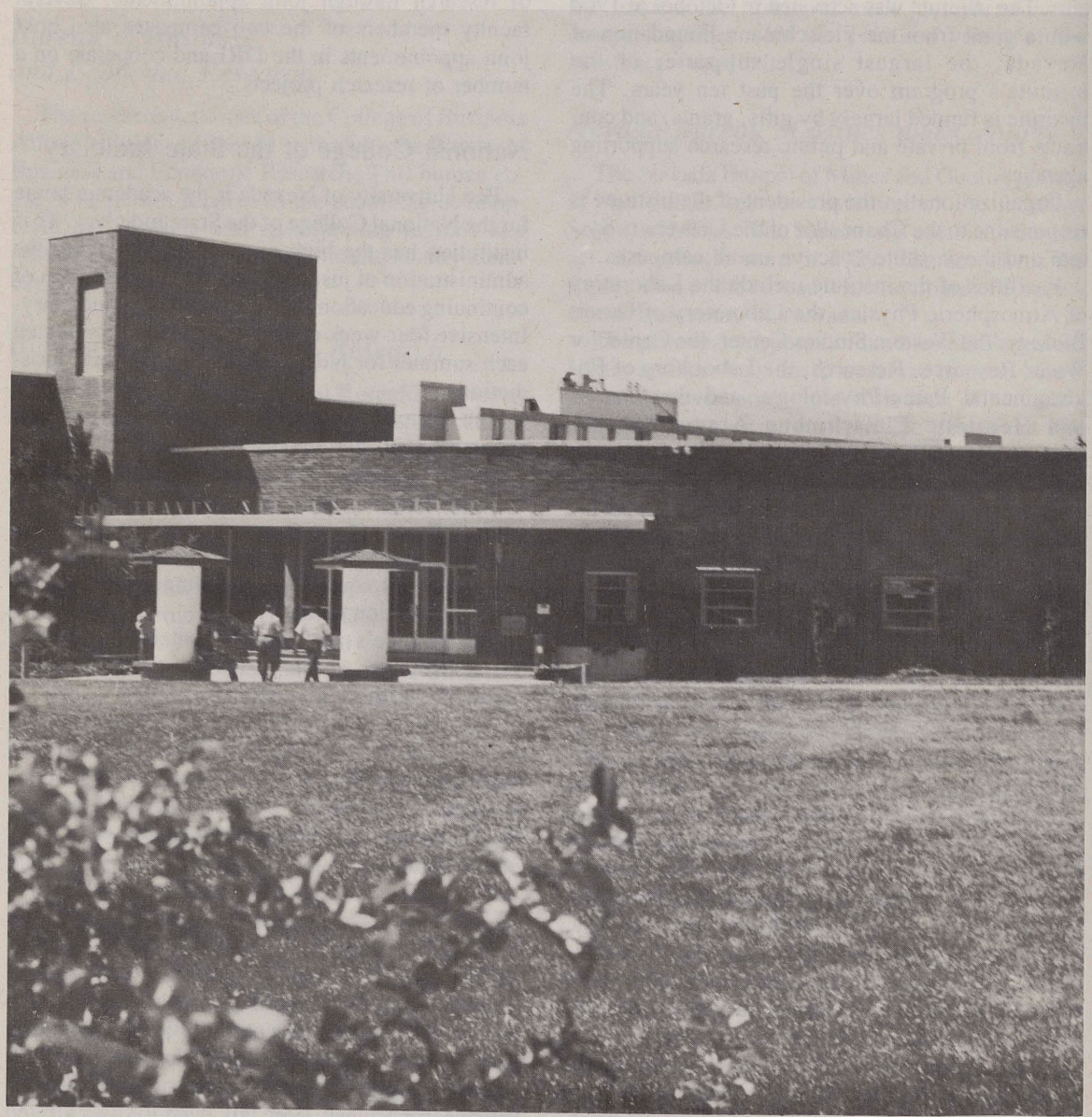
National College of Juvenile Justice

The University of Nevada, Reno, 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.

The college is the educational division of the National Council of Juvenile 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 Justice*, a quarterly journal devoted to the behavioral and legal problems of juvenile delinquency, and the *Juvenile Court Digest*, a monthly review of major court decisions affecting juveniles.

The college is funded by a second three-year grant from the Max C. Fleischmann Foundation of Nevada. Funds are also received from the Department of Justice, the Department of Health, Education, and Welfare, the American Bar Endowment, and a broad group of individual corporations and foundations concerned with the improvement of justice for children.



Jot Travis Student Union

Admission Information

General Requirements

Age: All applicants for admission to the University must be at least fifteen years of age.

Character: All new students are required to furnish satisfactory evidence of good moral character as evidenced by a certificate of graduation or of honorable dismissal from the school last attended. No applicant is denied admission because of race, color, 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.

Placement Tests: Each new undergraduate student, excluding transfers, must complete the following tests for proper placement:

English: American College Test (ACT) scores must be forwarded to the University prior to admission.

Foreign Language: The Foreign Language Placement Test is required prior to registration in other than a beginning course.

Mathematics: The Mathematics Placement Test is required prior to registration in Mathematics 110 or higher.

The foreign language and mathematics placement 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. Each individual who is interested in attending the University is responsible for submitting complete admission credentials to the Office of Admissions 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: (a) the medical history and examination verifying a tuberculin test (patch or X-ray) within the last year, and (b) the housing and testing form.
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.

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.

5. A photostatic or certified copy of the report of separation from military service if credit or exemption is desired.
6. **Early high school applicants** seeking approval to register in University courses prior to high school graduation must submit a special supplemental application form along with the regular application. The form is available upon request.
7. **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 full-time 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. 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 immediately following admission. Those who do not register at that time must submit the additional credentials necessary to bring the admission file up-to-date so a new admission decision may be made. Admission credentials for students who do not register are retained for a maximum of one year and then destroyed in accordance with established policy.

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

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

An ineligible applicant who gains admission to the University of Nevada, Reno, 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.

Academic Requirements

Early Admission for High School Seniors

An individual who demonstrates above average achievement through the junior year in high school may be granted early admission subject to these minimum requirements:

1. Evidence of an overall grade-point average of 2.5 (A=4) or above after 7 semesters, or 3.0 or above after 6 semesters — the end of the junior year.
2. An American College Test composite score of 21 or above.

Each individual who satisfies the grade-point average and ACT requirements may also be approved to register in University courses prior to high school graduation subject to these additional criteria:

- Be within 3 units of high school graduation.
- Be enrolled, or approved for enrollment, in the courses that will satisfy high school graduation requirements as certified by secondary school officials. An approved student who ceases attending high school becomes ineligible to continue in University courses. Registration is cancelled upon the recommendation of the principal or counselor.
- Have a personality showing mature social behavior.
- Have parental approval and be recommended by the high school principal or counselor.

An early admitted student who is approved to register for University courses is a regular freshman and is assigned a college 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.

Admission to Associate Degree Programs

The minimum academic requirement for admission to the associate degree (two-year) programs in agriculture and home economics is high school graduation or the equivalent, i.e., the General Education Development Test (GED) or the American College Test (ACT).

The admission requirements for electronics technology and engineering design technology are the same as for the baccalaureate degree (four-year) programs.

An associate degree student may request admission to a baccalaureate program at any time. Admission is granted when the requirements for regular status in the four-year program are satisfied.

An applicant who is ineligible for admission to the baccalaureate program upon graduation from high school must complete 15 semester credits or more of baccalaureate-level courses with an overall C average or above to qualify.

The transfer admission requirements are the same as for the baccalaureate programs, i.e., an overall C average on all acceptable transfer credit.

Admission to Baccalaureate Degree Programs

High School Graduate: Each applicant for admission to regular 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 in this section.

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.
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 ***nineteen*** 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). *Nongraduates are required to have been out of school for one full year or more and the individual's class must have graduated.*

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

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

Qualifying Program: A Nevada resident who does not satisfy the minimum undergraduate academic requirements for admission may apply for probationary status in the University Qualifying Program.

To be considered by the selection committee an applicant must have been officially denied admission and satisfy these criteria:

1. Be a graduate of an accredited high school or possess the GED equivalent (ACT scores may be substituted).
2. Provide three structured letters of recommendation, at least one of which should be from a former teacher, counselor, or principal of the last high school attended or the diploma-granting institution. If the applicant has been out of school for over two years, at least one recommendation should be from a former employer.
3. Complete a structured written statement regarding educational and vocational goals.
4. Appear for a personal interview, if requested.

Priority is given to mature women who have had an interruption in their educational training and to military service veterans. Special characteristics sought in each applicant include:

- An indication of significant achievement(s) since leaving school.
- Evidence of the necessary motivation to succeed.
- The capability and readiness to succeed in University-level study.
- A clear statement of educational and occupational goals.

Each applicant admitted to the program is eligible for financial aid consideration and special services, i.e., counseling, advisement, tutoring, reading and study skills assistance. The probationary admission status is effective for two consecutive semesters unless an exception is authorized by the selection committee. A student who successfully completes 24 semester credits of baccalaureate-level courses with an overall C average or above is removed from probation and encouraged to continue in an appropriate major. Each student is subject to the University regulations governing academic probation and suspension.

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

General Education Development Test (GED):

The GED Test scores are not acceptable toward satisfying admission requirements to baccalaureate program except as noted for the Qualifying Program.

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.

Admission is not granted to applicants whose credentials from other institutions are not on file.

Applicants from accredited institutions ordinarily are granted credit for all work completed at the previous institutions provided such courses are equivalent to those in the curricula offered at the University of Nevada. The amount of credit granted depends upon the nature and quality of the applicant's previous work as evaluated by the Office of Admissions in accordance with established University regulations and the following guidelines:

1. The accreditation of the institution and the listing published in the current AACRAO "Report of Credit Given" govern the acceptance of transfer credit: A listing—credit accepted; B listing—credit accepted after the first 15 credits in residence are completed with a C average or above; C listing — credits accepted after the first 30 credits in residence are completed with a C average or above; E listing—credit not accepted.

2. Elective credit may be granted for individual courses which are not offered in the University program provided the courses are clearly

University of Nevada • Reno

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 Geography curriculum.

University-level. Joint approval of the dean of the college and director of admissions 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 of Nevada 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.

10. A summary of acceptable advanced standing credits, including the actual transfer grade-point average, earned at each previously attended institution is posted to the student's permanent academic record. The UNR credit and grade-point totals accumulate separately.

Military Service Training: Advanced standing credit for military service training is awarded in accordance with the American Council on Education Guide to the Evaluation of Educational Experiences in the Armed Services.

A copy of the Report of Separations (DD214), or the equivalent DD295, must be submitted to the Office of Admissions for evaluation. All credit granted is equivalent to a grade of S for graduation purposes.

Independent Study (correspondence), Extension and USAFI: A maximum of 60 semester credits earned in acceptable independent study courses completed through a regionally accredited correspondence division (including USAFI) 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.

USAFI courses completed by the group-study method may be accepted in accordance with the advanced standing regulations. USAFI credit earned by examination (or nonenrolled) is not acceptable.

Credit by Examination

There are three types of examinations approved for earning University credit:

- College Board Advanced Placement Examinations (CBAPE)
- College-Level Examination Program (CLEP)
- Special Examinations administered by an academic department.

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 baccalaureate degree. Credit earned by examination does not apply toward satisfying the University resident credit requirement.

College Board Advanced Placement Examinations (CBAPE): Credit is granted and a grade of S is assigned for the satisfactory completion of available examinations with scores of 3, 4, or 5 subject to validation by the appropriate academic department. Since these examinations are primarily for students who complete advanced courses in high school, each interested individual must contact College Board Advanced Placement Examinations, Box 977, Princeton, New Jersey 08540, to register for the examination(s) desired. A fee of $22 for each examination must be sent with the registration materials by April 1 for the examination(s) which are administered annually in May. College Board must be requested to send the corrected examination(s) and score(s) directly to the University of Nevada, Reno, Office of Admissions and Records for evaluation in receiving university-level credit.

College-Level Examination Program (CLEP): Credit is granted and a grade of S is assigned for the satisfactory completion of general and subject examinations with scores of 500 or above:

- 6 semester credits for each of the five general examinations
- 3 semester credits for each of the subject examinations

The examination(s) should be completed before an individual enrolls at the University of Nevada, Reno, and must be completed prior to the end of the second semester in resident study at the University.

Each interested individual may contact the Director of Counseling and Testing; University of Nevada, Reno, to arrange for local testing. The fees

are $5 for each general examination and $10 for each subject examination. Arrangements may be made to take the examinations at one of the national testing centers by contacting the Program Director, College-Level Examination Program, Box 977, Princeton, New Jersey 08540. The fees are $15 for one general examination, $25 for two to five of the general examinations and $15 for each of the subject examinations. Military personnel may contact the Base Education Center or the Director, United States Armed Forces Institute (USAFI), Madison, Wisconsin 53713, to obtain testing information. The University of Nevada, Reno, Office of Admissions and Records must be listed to receive score(s) of the completed examinations for evaluation in receiving university-level credit.

Special Examination: A regular, currently registered student, not on probation, who can provide evidence of having achieved the objectives and covered the subject matter of a course listed in the catalog as a result of having taken a comparable course in a nonaccredited educational institution, or by systematic, independent study, or by directly pertinent occupational experience, may take an examination in that course for university credit subject to these regulations:

1. The student must apply for and take the special examinations during the first year in which registration occurs at the University. The dean of the college in which the course is offered may waive this requirement in exceptional cases in which the student has developed the skill or knowledge of the course since initial registration at the University.
2. Senior students are not eligible for credit by special examination.
3. Credit by special examination cannot be obtained 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.
4. Credit by special examination cannot be attempted in a particular course, more than once.
5. Credit by special examination may not be obtained in any course failed by a student nor in a course which the student has audited.
6. Credit by special examination is not allowed to a foreign student in language or literature courses which are in the native tongue and numbered below 300.

Procedure: The student must obtain approval to take the examination from the adviser, the dean of the college in which the student is registered, the instructor of the course, the chairman of the department, and the dean of the college in which the course is offered on the forms which are available in the Office of the Registrar. The fee is $10 per course.

The results of the examination, in the form of a letter grade from A to F, together with the completed examination, must be filed in the Office of the Registrar by the instructor prior to midsemester in order for the student to receive credit for that particular semester. The grade is recorded on the permanent record and treated as any other grade. The examination is kept on file in the Registrar's Office where it may be examined by any faculty member.

Additional Information: Specific questions regarding credit by examination policies and procedures should be directed to the Office of Admissions and Records.

Admission to Graduate Programs

Any student who wishes to do graduate study must first be admitted to the University. Each applicant is responsible for filing the required credentials with the Office of Admissions not later than three weeks prior to the desired registration period to allow sufficient time for processing. Admission may be to one of two classifications: Graduate Standing or Graduate Special.

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 school) 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. A University of Nevada graduate is not required to submit transcripts of the credit earned at the University.

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. 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.

NOTE: A University of Nevada 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 Registrar's Office prior to the first registration in this classification.

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 and the supporting credentials directly to the appropriate Office of Admissions 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.

Dining Commons, overlooking Manzanita Lake

Nye Hall Dormitory

Regulations For Tuition Charges

An application for resident fees must be submitted to the Office of Admissions 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 *her* and *his* shall apply to the female person as well as the male, unless the context clearly otherwise requires.
4. The word *family* means the father or mother of the student or the legal guardian of the student, if appointed by a court at least six (6) months prior to the date of matriculation and for purposes other than the 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 registration 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 by him.

Tuition Charges

Tuition shall be charged to those persons classified as out-of-state students registering for seven (7) credits or more in a given semester at the University of Nevada, Reno or the Community College Division, or registering for nine (9) or more credits in a given semester at the University of Nevada, Las Vegas.

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 six (6) months prior thereto, shall be classified as an in-state student.
4. A student whose parent or guardian (as defined in the word *family*) is a member of the Armed Forces and stationed in the State of Nevada pursuant to military orders 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 status 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 as a bona fide resident. The student

may qualify for reclassification as an in-state student only if the presumption is rebutted by clear and convincing evidence that the student has resided continuously in the State of Nevada for a period of at least twelve (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.

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.

Determinations of Status

Each division of the University of Nevada affected shall implement these regulations through the Admissions Office 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 thirty (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 only applies in the infrequent, exceptional cases where a strict application of these regulations results in an obvious injustice.

Registration

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 the Registrar. 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 Univrsity 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.

Courses numbered 1 - 99 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. Noncredit courses are considered as a part of the student's total program on a credit equivalent basis. A full-time undergraduate student is defined as one who is registered for 12 or more semester credits or its equivalent of course work.

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: History 101, 401, 701; Political Science 409, 410, 709, 710. Previously offered courses include History 1, 341; and Political Science 79, 101, 201, 207, 302, 303, 602, 603.

Nevada Constitution: History 102, 217; Political Science 208, 408, 708. Previously offered courses include History 2, 317, 331; and Political Science 80, 102, and 202.

United States and Nevada Constitutions: History 111; Political Science 103. Previously offered course, Political Science 203.

Political Science 20 satisfies this requirement for a number of the associate degree programs.

English: Each student is required to demonstrate proficiency in the English language to satisfy the University requirement. Initial placement is based on ACT English scores. Each highly qualified student may receive a waiver of English 101 and be placed directly into English 102 which satisfies the University requirement. An individual completing English 101 with a grade of A or B may, with the approval of the adviser, substitute one of the following courses for English 102: English 235, 236, 241, 281, 291, 321, 335, 336; Philosophy 105, 114, 201, 202, 203, 221, 222, 225; Journalism 221, 370; Speech 217, 218, 221.

Military Science: Every male student who is a candidate for the baccalaureate degree must satisfy the University military science requirement unless an exemption is approved through the Office of Admissions in accordance with established policy.

The University military science requirement may be fulfilled by the satisfactory completion of **one** of these options:

1. Complete an approved high school military orientation course. This includes the regular three-year high school ROTC program.

2. Complete a University-sponsored, 16-hour, orientation course presented by Selective Service, civilian faculty and military personnel. The course includes information on active and reserve military service in each armed service and the National Guard, the military career, conscientious objection, the organization of the defense establishment, and factors of national power and security. A grade of S (satisfactory) or U (unsatisfactory) is given.

3. Complete Military Science 101 during the first semester of the student's initial year at the University.

Options 1 or 2 must be completed prior to the student's first semester at the University. Students failing to complete Options 1 or 2 are required to register in and satisfactorily complete Option 4 in the first semester of enrollment. Eligible male students who anticipate working toward an officer's commission while enrolled in a regular four- or five-year baccalaureate program should elect to register in the regular 8-semester basic military science program. Male students not seeking a commission are expected to elect one of the three options.

Students having satisfactorily completed a course in Military Science 101 or an equivalent course in Air Force or Naval ROTC satisfy the University military science requirement.

Exemptions are approved for students who:

1. Are twenty-two years of age or over at the time of initial registration as a regular student at the University.

2. Will be twenty-six years of age or more on or prior to the date of graduation regardless of age at the time of initial registration as a regular student.

3. Transfer into the University (including students transferring from the University of Nevada, Las Vegas) with 44 or more acceptable semester credits.

4. Complete four or more months of continuous active duty for training or active service in the Armed Forces of the United States.

5. Are enlisted personnel in active status in the Armed Forces of the United States.

6. Are commissioned personnel in any status in the Armed Forces of the United States.

7. Are aliens. (A noncitizen desiring ROTC may be enrolled if evidence is submitted verifying an intention to become a United States citizen and the native government grants permission.)

8. Are registered as conscientious objectors with their local draft boards on special form SSS No. 150. Documentary verification, signed by the draft board, is required.

9. Are physically disqualified. A certificate of exemption from the University Health Service is required.

10. Have satisfactorily completed three years of high school ROTC or the University-sponsored orientation course.

Precedence of Certain Courses

Required Courses: All students must give precedence to required courses in regular sequence and may not register in an elective course to the exclusion of a required course. Only under exceptional circumstances may the dean of the college permit a student to defer a required course or to withdraw from it. In no case may 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 must be repeated in class as soon as the course is offered in the University of Nevada, Reno 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 the Registrar.

Credit Load: The maximum number of credits a student may take per semester with the approval of the assigned faculty adivser is 21 undergraduate or 16 graduate. 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

Distribution of Registration Materials: Preceding the assignment to classes, registration materials are distributed by the Office of the Registrar.

Registration Day: Each student who has an approved program of courses is admitted to a centralized registration area regulated by a class-alphabetical time schedule to complete registration. 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: After registration materials are filed in the Office of the Registrar, a student may add courses or change sections up to the close of the registration period. After this date, exceptions may be made 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 the Registrar, secure the proper signatures, pay the required fee, and file the completed form in the Registrar's Office for the *add* to be official.

Audit to Credit: An auditor changing to a credit basis must complete the change of registration form and pay the additional course fees 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 college.

Procedure: Each student must obtain a change of registration form from the Office of the Registrar, secure the proper signatures, and file the completed form in the Registrar's Office for the *drop* to be official.

Credit to Audit: A student changing from credit to audit is subject to this regulation and is not entitled to a refund of fees.

Withdrawal From the University: A student wishing to withdraw from the University should appear for a terminal interview in the Office of Student Services to secure the proper withdrawal form. 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 forms in the Office of the Registrar, the withdrawal is official. **A student who leaves the University without officially withdrawing receives a failing grade in all courses unless the teacher initiated an administrative W.**

Change of College, Major, or Adviser: A student may change college, major, or adviser by obtaining a change card from the Registrar's Office (or the dean of the college) and securing the required signatures. The completed change card must be filed in the Registrar's Office 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 Registrar's Office and submitting a copy of the supporting document.

Cancellation of Courses: The University of Nevada, Reno, 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 the 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 college is responsible for determining the total number of credits earned with grades of *S*, *P* or *Cr* and the specific courses (transfer, elective or required) which are acceptable toward a degree in that college within the limits of the University maximum.

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

6. Credits and grades recorded in accordance with the satisfactory-unsatisfactory policy are applicable toward meeting graduation requirements but are excluded when calculating the grade-point average.

Procedure: 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 a regular letter grade to each student in all courses except those approved for *S* or *U* grading only.

4. The Registrar's staff converts the regular grade of each student who is registered in an approved course for optional *S* or *U* grading (A,B,C =S; D,F=U) prior to posting to the permanent academic record.

Categories of Students

Regular

Regular students are those who have been officially admitted to the University of Nevada by satisfying the admission requirements to one of the established degree programs. The classification is determined by the total number of semester credits completed: first- or second-year associate degree student, freshman, sophomore, junior, senior, graduate special, or graduate standing.

Regular students may be either full-time (undergraduates—12 credits or more per semester; graduates—9 credits or more) or part-time.

Nondegree

An individual who is *nineteen* years of age or over, or who can present evidence of high school graduation, may register as a *nondegree* student without official admission to the University. 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 15 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 Summer Session and General University Extension. High school students who are approved for the Superior Student Program register as nondegree students.

Auditor

With the approval of the department offering the course and the dean of the college in which the student is enrolling, a student may register for audit. Auditors receive no credit or grade, but may, at the discretion of the instructor, have the class privileges of other students.

An individual sixty-two years of age or older may register in classes, other than those where special instruction fees are charged, as an auditor for a fee of $10 per course. Each registration is contingent upon the availability of space in the course and the approval of the department concerned.

An auditor whose performance in class is considered unsatisfactory may be dropped by filing with the Registrar a written authorization signed by the instructor, department chairman and dean.

Classification of Students

A regular, undergraduate student is classified by the Office of the Registrar on the basis of the following number of semester credits completed:

Freshman or First Year	Sophomore or Second Year
29 or less	30-59
Junior	**Senior**
60-89	90 or more

Requirements for Graduation

Catalog: A student may elect to graduate under the degree requirements of the year of admission and matriculation, or the year of graduation, but not under a combination of these. Each student must satisfy the current academic requirements.

No degree, diploma, or certificate may be granted to an applicant 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 of Nevada, Reno. This includes all courses repeated and excludes those courses resulting in marks of **AD, I, S, U** and **W.** Additional academic requirements also may be established by the dean of an individual college.

Course Requirements: In addition to the courses required by each school or college, there are University course requirements which must be satisfied by each candidate for a baccalaureate degree. These requirements are English 102 (or equivalent), military science for men (unless exempt), and the satisfactory completion of courses in United States and Nevada Constitutions.

Candidates for associate degrees are required to complete 6 semester credits of English, and the necessary course(s) to satisfy the United States and Nevada Constitution requirements. Military science is not required.

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 studies. 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. A premedical, prelegal, or medical technology student who has completed three years of approved resident credit at the University of Nevada, Reno, may complete the last 32 credits by satisfactory work in a professional school or University approved hospital.

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.

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 the Registrar 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 registration period is assessed a late application fee. The $5 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 a new application during the regular filing period* and pay an additional $2.50 diploma fee if a diploma was ordered previously.

Dual Baccalaureate Degrees

A student may earn two degrees, either successively or simultaneously, provided all specified requirements for both degrees are fully satisfied and the courses taken for one degree include a minimum

of 30 credits, earned in residence, beyond the requirements for the other degree.

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 Degrees and Credit Requirements

The minimum number of credits required by the University for an undergraduate degree is 64 for the associate degree and 128 for the baccalaureate degree. Some individual colleges require additional credits as listed. The specific requirements are shown in the respective college sections.

The minimum number of credits required for an undergraduate degree in each of the colleges is listed.

Advanced Degrees

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

	Credits Required
School of Agriculture—	
Associate of Science in Agriculture (A.S. in Ag.)	64
Bachelor of Science (B.S.)	128
College of Arts and Science—	
Bachelor of Arts (B.A.)	128
Bachelor of Science (B.S.)	128
Bachelor of Science in Chemistry (B.S. in Chem.)	128
Bachelor of Arts in Journalism (B.A. in Journ.)	128
Bachelor of Science in Criminal Justice (B.S. in C.J.)	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 Technology (A.S. in E.T.)	70
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 Geography (B.S. in Geog.)	128
Bachelor of Science in Geology (B.S. in Geol.)	128
Bachelor of Science in Geological Engineering (B.S. in Geol. E.)	134
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 (B.S.)	128
Bachelor of Science in Nursing (B.S. in Nurs.)	128

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.

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.

A teacher may effect an administrative drop on the midsemester class list by giving a **W** for any student who has never attended the class, or whose attendance ceased, during the first eight weeks of the semester. From the ninth week until the last two weeks of the semester, with the approval of the department chairman, a teacher may effect an administrative **W** by special memorandum to the Registrar for a student whose attendance ceased while passing. Administrative **Ws** are not permitted during the last two weeks of a semester and may not be assigned by the teacher as a final grade on the class lists.

I is a neutral mark and means incomplete. An **I** is given when a student is performing satisfactory work, but for a reason beyond his control is unable to complete the required work for the course during the semester or term. An **I** is excluded in the computation of the grade-point average.

Prior to filing the final grade reports with the Registrar each instructor is required to submit on the back of the grade report the reason for giving each **I**, the work to be done to complete the course, the approximate grade of the student at the time the **I** is given, and the approval of the department chairman.

An **I** that is not removed in one calendar year from the date of issuance remains an **I** indefinitely unless removed by repeating the entire course.

The 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 or director of the college is required.

An incomplete is made up when the student completes the outstanding work within the required time and the instructor submits to the chairman of the department and the Registrar the proper form certifying to the completion of the course with the proper grade assignment.

Repeat: A passed course at the University may be repeated to gain additional grade points provided proper registration occurs. These courses are marked "repeat" and additional credit cannot be earned.

Determination of Grades

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 with the Office of the Registrar 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.

Changing or Appealing a Final Grade: After the final grades are filed in the Office of the Registrar, a grade may normally be changed only to correct a clerical error. For these changes, the in-

structor must file with the Office of the Registrar a completed change of grade form approved by the chairman of the department and the dean of the college.

A student may appeal a final grade in a course through the instructor, department chairman, and the departmental appeals board. If consultation with the instructor does not resolve the problem, the student may then submit a written appeal to, and have a consultation with, the department chairman. The student may request a hearing before a departmental appeals board composed of faculty and students. A record of each hearing must be sent to the deans of the colleges of the instructor and the student involved. The instructor is responsible for filing the appropriate grade with the Registrar.

Grade-Point Average: The grade-point average 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 grade-point average.

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 grade-point average of 3.5 or higher is determined at the close of each semester by the Office of the Registrar.

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 grade-point average of 3.75 or higher receives the baccalaureate degree with High Distinction (or with Distinction if the grade-point average is between 3.5 and 3.75). Each transfer student from another institution must satisfy the same requirements and have a combined transfer-University grade-point average of 3.75 or higher for High Distinction or 3.5 or higher for Distinction.

Transcript of Record

Upon the written request of eligible students and the payment of the proper fees, the Office of the Registrar 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.

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: A student is deficient in grade points 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 1-99 toward baccalaureate grade-point deficiencies in satisfying the minimum grade-point average 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: A student is placed on scholastic probation at any time the following occur:

1. The cumulative grade-point average 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 grade-point average 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 or director of the school or college.

Release from Probation: A student who has reduced the deficiency to a 2.0 grade-point average on the cumulative record is no longer on probation. A student who had an overall 2.0 grade-point average 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: A student deficient 15 or more 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, a student must earn a minimum of **6** acceptable semester credits if on first suspension, or **12** acceptable semester credits if on second suspension, with a 2.50 GPA or above. These credits may be earned in correspondence study, University summer school, 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 grade-point average 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 Procedure: 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 another educational institution since being suspended from the University, an official transcript must be submitted for evaluation. The $3 transcript evaluation fee is payable by check or money order and must accompany the application.

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 grade-point average 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 with the Office of Admissions. 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 School, or correspondence study, at the University. Upon completion of 12 or more acceptable semester credits with an overall grade-point average of 2.5 or above, the student qualifies for readmission on probation.

Thompson Student Services Center

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, receive a transcript of record, or a diploma.

Application Fee

Persons making application for admission to the University are charged a fee of $10, which is not refundable nor applicable to any other fee.

Consolidated Fee for Undergraduate Students

Undergraduate students registered for seven or more credits or credit hour equivalent pay a consolidated fee per semester as follows:

Registration fee	$130.00
Capital Improvement fee	84.00
Associated Student (ASUN) fee	21.00
Intercollegiate Athletics fee	9.00
Health Service fee	18.00
Consolidated fee	$262.00

Medical School students must pay an additional $370 per semester registration fee surcharge.

(Out-of-state students should refer to the section on Tuition for Non-residents.)

Capital Improvement Fee

A special capital improvement fee of $84 per semester for full-time students or $6 per credit or credit hour equivalent for part-time students is assessed. This fee is used as directed by the Board of Regents for property acquisition and to service revenue bonds or certificates, the proceeds of which were used to construct University buildings.

Associated Students Membership Fee

At the request of the Associated Students of the University of Nevada, approved by the Board of Regents, membership in ASUN is mandatory for all undergraduate students taking 7 or more credits per semester. This fee of $21 per semester is included in the consolidated fee. Optional membership is available to graduate students and to undergraduate students registered in 6 credits or less.

The ASUN fee includes subscription to the student newspaper and yearbook, class dues, and such other publications and activities as are allocated moneys by the ASUN Finance Control Board and Senate.

Intercollegiate Athletics Fee

All undergraduate students registered for 7 or more credits are subject to the Intercollegiate Athletics Fee. This fee of $9.00 per semester is included in the consolidated fee and admits the student to regular varsity athletic events.

Student Health Service Fee

All undergraduate and graduate students registered for 7 or more credits, all students living in University residence halls regardless of credit load, and all foreign students must pay a Student Health Service fee of $18 per semester. The Student Health Service fee provides for the operation of a facility staffed with resident nurses and for the services of a physician. For details see the pamphlet entitled "Student Health Services and Accident Insurance Plan" available at the Office of Student Affairs.

Exempt from payment of this fee and ineligible for participation are students registered for 6 credits or less, except that, as noted above, all foreign students and students living in University residence halls are subject to this fee.

Certain part-time graduate standing students may elect to pay the Student Health Service fee as described in the Student Personnel Program section.

Tuition for Nonresidents

Tuition of $600 per semester is charged undergraduate and graduate 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 form provided by the Office of Admissions. This fee is in addition to fees applicable to residents.

Medical School students must pay an additional $250 per semester tuition surcharge.

Consolidated Fee for Graduate Students

Graduate students registered for 7 or more credits or credit hour equivalent pay a consolidated fee per semester as follows:

Registration fee	$130.00
Capital Improvement fee	84.00
Health Service fee	18.00
Graduate Students' Association fee	2.00
Student Union Fee	2.00
Consolidated Fee	$236.00

Medical School students must pay an additional $370 per semester registration fee surcharge.

Students Registered for 6 Credits or Less

Graduate or undergraduate students registered for 6 credits or less, regardless of residency, pay $16 per credit hour for registration and $6 per credit Capital Improvement fee for a total of $22 per credit. Such students are not eligible for accident insurance coverage, nor are they served by the Student Health Service, except as noted in the section under Student Health Service Fee.

Auditors

Persons granted the privilege of auditing classes pay a fee of $10 per credit hour equivalent plus $6 per credit equivalent Capital Improvement fee for a total of $16 per credit. The credit equivalent of an audit course is considered in the determination of whether a student is liable for the graduate or undergraduate consolidated fee.

Individuals 62 years of age or older may register in classes, other than those where special instruction fees are charged, as auditors for a fee of $10 per course.

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 semester. Summer Session students are assessed a late registration fee of $5 per day to a maximum of $10 for the second day or later.

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

Accident and Health Insurance Plan

An accident and health insurance plan is available to all students registered for 7 or more credits, graduate assistants under contract regardless of credit load, and is mandatory to all foreign students. 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:

1. Courses requiring equipment, facilities, or materials not available on the University campus; for example, bowling, golf, swimming, or certain field courses.
2. Private instruction in music and similar arts.
3. Noncredit courses, conferences, workshops, postgraduate professional seminars, and similar educational offerings.
4. Personal expenses of students incurred in connection with field trips or laboratories.

English B Fee

English B is considered equivalent to three credits in fee assessment and the determination of the total credit load for applying the consolidated fee.

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.

Diploma Fee

A diploma fee of $8 for an associate, bachelor's

or professional degree, $15 for a master's degree or education specialist certificate, and $25 for a doctor's degree is assessed and billed during the final semester in which each student is to be graduated. If a diploma is ordered but the student fails to meet the requirements for graduation on the date specified, an additional $2.50 fee is required for each subsequent application. If the diploma is to be mailed, an additional $1 fee is required and payable in advance.

Transcript of Record Fee

A fee of $1 must be paid in advance for each transcript of record.

Uniforms

Students enrolled in the Orvis School of Nursing and in certain physical education courses are required to furnish prescribed uniforms. The prescribed women's physical education outfit may be purchased at the ASUN Bookstore or local sporting goods store. The nurses' uniforms may be purchased from local stores. A fee to cover the cost of the required men's outfit or of leotards and tights for women taking gymnastics, conditioning, or modern dance is assessed at the time of registration and the uniforms are issued by the Department of Physical Education.

Other Fees

Late application for graduation, $5. Special Examination fee, $10 per course. Placement Office registration fee, $3. Placement Office fee for reactivation and updating credentials, $3. Supplementary transfer credit evaluation, $3. Chemistry breakage deposit, $5. American College Testing Program (ACT) examination, $10 if taken during orientation. National League for Nursing Standardized Achievement Test, $5.

Board and Room Charges

(Subject to Change)

The charge for board and room in University residence halls on the Reno and Stead campuses is $550.50 per semester. This amount is allocated as follows: residence hall $298.50, hall deposit $10, telephone service $19, and $243 to Dining Commons for fifteen meals per week.

The rent for an apartment at University Village, the married student housing area, is $75 per month plus utilities.

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 the $25 security deposit. If cancellation comes after registration into the assigned hall, the regular refund schedule applies. 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. No refunds are made after the twelfth week of the semester.

Refund of Fees

Students Withdrawing from the University: Refunds of consolidated fee (exclusive of ASUN fee and intercollegiate athletic fee), nonresident tuition, or fees per credit are computed from the first day after registration day as follows:

Withdrawal during	Refund
1-2 weeks	75 percent
3-6 weeks	50 percent
7-8 weeks	25 percent
9-16 weeks	none

ASUN fee and intercollegiate athletics fee are refunded 100 percent if withdrawal occurs within two weeks after registration day and no refund is given after that date.

Students Registered for 7 Credits or More and Changing to Part-time Status: The difference between the cost of the reduced credit load and the consolidated fee exclusive of ASUN fee and intercollegiate athletics fee is refunded in accordance with the above refund schedule. Nonresident tuition is refunded in accordance with the same schedule.

Students Registered for 6 Credits or Less: If a student drops a course or withdraws from the University, registration fees are refunded in accordance with the above refund regulations.

Students Registered for 6 Credits or Less in Summer School Division or Special Programs: If a student drops a course or officially withdraws from the University before the end of one-fourth of the total scheduled number of sessions of a course in Summer School or special programs, a refund of three-fourths of the total fees for the course paid by the student is made. In cases of a later official withdrawal or dropping of courses no refund of fees is made.

Auditors: Refunds do not apply to auditors who withdraw, unless the class is not offered, in which case the total fee is refunded.

Special Instruction Fees: A pro rata refund of special instruction fees is made in conformity with the same schedule as specified above.

Method of Paying Refunds: All refunds are paid by check. No refund checks are issued until thirty calendar days after registration day.

Refunds to Students on Deferred Payment

While the percentage refund schedule shown above governs the refund policy for students on Deferred Payment the method of computation differs. The amounts due the University must first be satisfied before any refunds are made. For example, if withdrawal occurs between the third and sixth weeks, 50 percent of the refundable fees plus all of the nonrefundable fees are due the University.

Special Refund

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

1. Induction of the student into the U.S. Armed Forces;
2. Death of parent or legal guardian of student; or
3. Death of student.

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

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

Each student is expected to pay all assessed fees on registration day unless a grant-in-aid, fee waiver, or accounts receivable card is secured prior to registration day. The only exception to this rule is a student who enters into a deferred payment contract with the University. (See Student Services section for deferred payment information.)

Student Expenses Per Semester

The basic charges for a student living in a residence hall are:

Consolidated fee	$262.00
Board and room **(Subject to change.)**	570.50
	$832.50
Nonresident add	600.00
	$1,432.50

This does not include special instruction fees, nor does it include textbooks, notebooks, clothing, laundry, entertainment, travel, or personal incidentals.

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.

Student Personnel Program

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

Prospective students and their parents are invited to contact 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 housing, Student Union and University activities, and programming; Director of Counseling and Testing; Director of Financial Aid and Graduate Placement; Director of the Student Health Service; the foreign student adviser; and the Director of Student Assistance.

Advisory and Counseling Services

Academic Advising: Faculty advisers are assigned by the deans of the various colleges and are responsible for aiding in the progressive development of proper educational planning. The academic advisers assist students with the planning of their program of study, serve as general consultants to students, and refer those with special problems to other departments or agencies.

Professional Counseling: The Counseling Service helps students develop self-understanding so they may use their assets more effectively and plan attainable goals for the future. Counseling in regard to vocational and educational planning, personal and social adjustment, marital and premarital adjustment, and training in study skills are among the many types of services available without cost to students attending the University.

Staff members are professionally trained counselors, and, in their relationships with students, the confidential nature of counseling is respected. This means students may feel free to discuss any situations or problems which concern them. The Counseling Service is not connected with, and does not report to, any disciplinary agency on the campus.

Appointments may be made by coming to the office of Counseling Services in Thompson Student Services Center. Although no referral is necessary for a student to secure counseling services, students may be referred by their faculty advisers or other University officials if this is preferred. Any student may make a first appointment to discuss a question or situation, and then a mutual decision is made as to whether the student should have other appointments with the counselor.

Students with personal problems may contact either the Counseling Services or Psychological Services Center. Students with special problems may be referred to the Psychological Services Center (Department of Psychology). A limited amount of precollege testing and counseling is available to high school graduates who are officially admitted to the University. Scholarship winners are urged to contact this office frequently.

Individuals who qualify for certain kinds of Veterans' Administration counseling services are assisted upon request, and may be referred to this office by the Veterans' Administration.

Service may be obtained by telephoning University extension 6810, by mail, or in person.

General and Group Counseling: Students and student groups have frequent occasion to avail themselves of the guidance services provided by the Office of Student Services. This office serves as a general counseling agency and all-University clearing house of information, particularly with reference to activities outside the classroom. 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 serve in advisory relationships with student groups and organizations on campus, including the Activities Board, Student Judicial Council, service clubs, Associated Women Students, fraternities, sororities, residence hall governing associations, and independent groups and organizations. Disciplinary counseling in connection with infractions of University rules and regulations is a function of the Office of Student Services.

Foreign Students: The foreign student adviser provides a special service to foreign students in 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 (IIE) Institute of International Education, foundations, and other groups. The adviser serves as the official channel between the students, faculty, administration, community, and home governments.

The foreign student office assists foreign 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 foreign students are made primarily through the Office of Admissions and Records. All first inquiries, applications and transcripts of previous high school and university work are channeled through that office; and all admissions and certified statements necessary to procure passports and visas are issued by that office.

The foreign student adviser acts as ex-officio adviser to the International Relations Club and is available in Thompson Student Services Center.

Testing Services

Prior to their first registration, incoming freshmen and transfer students are required to take placement, achievement, and aptitude tests administered by the Counseling and Testing Office. This service scores each test, analyzes the test results, and furnishes the student's individual scores to him and to his academic adviser for purposes of counseling.

Individual, group, and specialized testing is available and frequently is indicated for students with unusual problems. Vocational, interest, aptitude, personality tests, and professional and graduate school admission tests are available. Assistance is also given to any college department or instructor having special problems in testing and research.

Student Personnel Records

The privacy and confidentiality of all student personnel records is of primary importance. Official student personal records, supporting documents, and other student files are maintained only by full-time members of the Office of Student Services staff employed for that purpose. Separate files are maintained for student personal records, records of discipline proceedings, medical and psychiatric records, financial aid records, and graduate placement records.

No information in any student file may be released to anyone except with the prior written consent of the student concerned or as stated below:

1. Members of the faculty with administrative assignment have access for internal educational purposes as well as routinely necessary administrative and statistical purposes.
2. The following data may be given any inquirer: school or college of enrollment, periods of enrollment, and degrees awarded, honors, major field, and date.
3. If an inquiry is made in person or by mail, the following information may be given in addition to that in subsection 2; address and telephone number, date of birth, and confirmation of signature.
4. Properly identified officials from federal, state, and local government agencies may be given the following information upon express request in addition to that in subsections 2 and 3; name and address of parent or guardian if student is a minor, and any information required under legal compulsion.
5. Unless under legal compulsion, personal access to a student's file is denied to any person making an inquiry.

Upon graduation or withdrawal from the University, the records and files of former students continue to be subject to the provisions of these policies.

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 Registrar's Office and to the Associate Dean of Students' Office.

Mail

The University branch of the post office is located on the lower level of the Jot Travis Student Union. All usual services are available. Mail boxes may be rented. General delivery is not provided. Students living on campus must have a post office box to receive mail. Mail addressed to dormitories cannot be delivered and is returned to the sender.

Parking Permits

Each student is required to complete a Vehicle Registration Card during registration and obtain a parking permit when appropriate. The University Traffic Code governs all vehicles operated on the campus. Vehicles parked in violation of the University Traffic Code are subject to citation and/or impounding. Parking information is available in the office of the University Police.

Reporting to the Office of Student Services

The Dean of Students and persons acting in his behalf may require students to appear at a time and place designated if there is evidence of a violation of University policies or regulations, or if the student may have been involved in said violation or may have evidence regarding such a violation.

University Police

The University Police, a division of the Business Office, is responsible for submitting reports to the Associate Dean of Students on any incidents involving University students which require police action, and on any incidents of alleged student misconduct.

Housing Information

The University makes every effort to assure students of suitable living conditions, food, and housing. The core of the housing system is provided by the University residence halls which supply complete living facilities for 1100 men and women. In addition, a number of national fraternities and sororities maintain chapter houses which are considered part of the campus. Other facilities, exclusively for students, include a variety of privately owned living quarters that are available in the Reno area.

The Housing Office is responsible for the business management of residence halls and married student housing. This office also makes all room and roommate assignments and arranges the check-in and check-out procedures for the residence halls. The Office of Student Services administers the student personnel services within the living areas, including student government, social, recreational, and academic programs, as well as counseling services and the development of cooperative living and self-discipline.

General Policy

All unmarried freshmen and sophomores not living with immediate relatives or legal guardians are required to live in University residence halls, fraternities, or sororities to the extent that such housing is available. Only regular, full-time students are eligible to reside in University residences. All student residents are expected to carry a minimum of 12 semester credits of University work.

The Exceptions Committee is authorized to waive this policy where unusual, extenuating circumstances warrant such action.

Residence Halls

The University of Nevada maintains five residence halls accommodating over 1100 men and women students and operated jointly by the Office of Student Services and the Housing Office. However, direct assistance in orientation to residence hall living and campus life is provided by each floor's Resident Assistant, an upper-class student especially adept and trained to provide such help. Each residence hall and its student staff is managed by the hall's Resident Director.

Coed Residence Halls: Men and women are assigned to different floors in each of Nye, White Pine, and Juniper Halls. While the traditional personality of men's or women's floor is maintained, the student government and some social, recreational, and cultural activities are coeducational in nature. Many students, as well as the University, feel this alternative offers a realistic, representative environment.

Nye Hall is a new, high-rise hall accommodating 560 students with two students assigned to each room. There are lounges on each floor, a larger reception and lounging area in the main floor lobby, and recreational facilities in the basement, including a weight-training room, arcade, and radio station.

White Pine Hall accommodates 160 students in an innovative suite style, wherein each suite consists of four bedrooms, a living room, and bathroom

facilities. Furthermore, there are no hallways or corridors, as all suites open directly to the outside. The Danish Modern lounge has a fireplace for winter evenings and laundromat facilities are available on the ground floor.

Juniper Hall, which houses 192 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: Although recently refurbished, Manzanita Hall has a long campus tradition as the Women's Residence Hall. A study lounge and comfortable living room help create a very familiar, home-like environment which is shared by 106 women. Sharing both a campus tradition and an intimate environment with Manzanita is Lincoln Hall. With no two rooms identical, a large fireplace and recreation room, the 80 men residents find Lincoln to be as much a home as a unique residence 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 forty one-bedroom apartments which share central laundry facilities.

At the Stead campus, the University maintains fifty-four two-bedroom and twelve one-bedroom furnished apartments which are available for married students.

Applications for married student housing may be requested from the Housing Office.

Off-Campus Housing

The Office of Student Services maintains a listing service for students, faculty, and staff. The listings include off-campus apartment and house rentals privately managed, 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

For the accommodation of students and staff the University operates a dining commons. The charges are listed in the section on fees. With the approval of the Board of Regents, the rate for meals may be raised or lowered to conform with current prices. The administration of food service is handled by the Office of Food Services.

Dining commons regulations are as follows:

1. All students (except freshmen) have the option of contracting for meals.
2. If the contract meal option is selected, students are expected to come with sufficient funds to pay their housing and food service fees upon registration into the residence hall; however, deferred payment arrangements may be made at the check-in desk upon arrival on campus.
3. The first meal served each academic semester is breakfast on class registration day, and the last meal served is lunch on the last day of the semester. 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 Controller's office.
5. Students who officially withdraw receive a refund in accordance with the refund schedule (see Fees and Expenses section).

Jot Travis Student Union

The Jot Travis Union provides staff leadership and facilities which makes it a center of informal education and the locale for University meetings and activities of many types.

The Union provides lounges, snack bar, music listening room, typing room, guest rooms, space for banquets and luncheons, check cashing, ticket sales, 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 *family*.

Student programs emphasizing educational, so-

cial, 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, all students living in University residence halls regardless of credit load, and all foreign students must pay a Student Health Service fee. The Student Health Service fee provides for the operation of a facility staffed with resident nurses and for the services of a physician.

Exempt from payment of this fee and ineligible for participation are students registered for 6 credits or less, except that, as noted above, all foreign students and all students living in University residence halls are subject to this fee.

Graduate teaching and research fellows and regular graduate standing students who are pursuing full-time graduate study, but are registered for 6 credits or less, may elect to pay the Student Health Service fee. A written statement from the student's adviser verifying the equivalent of full-time graduate study must be submitted to the Director of the Student Health Service. Approval is then contingent on a complete and up-to-date medical record. Graduate special students who are registered for 6 credits or less are not eligible for the Student Health Service.

Safe and efficient medical treatment is based upon proper identification of the students in reference to their health record. Falsification of identity or contributing thereto, by the loan of identification cards may have serious consequences such as allergic reactions, conflict with other medications or chronic conditions, confusion of symptoms and proper diagnosis, etc., and being dangerous to the person treated, is subject to disciplinary action.

Student Health-Accident Insurance: All students attending the University enrolled in 7 credits or more are eligible for participation in 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, provided at low cost group premium rates, 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.

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.

Division of Student Assistance

Special Services is concerned with undergraduate students who require additional services and an innovative curriculum to ensure their success in the academic environment. Services provided include individual advisement, tutoring, class schedule advisement, special class sections, readers for blind students, and efficiency reading and study skills classes.

Students with the following characteristics may qualify for the Special Services program: physically handicapped, low income family, inadequate high school preparation, standard English as a second language, cultural heritage is not represented sufficiently or accurately in the traditional curriculum.

The purpose of the *Educational Opportunities Program* is to enroll at the University of Nevada, Reno, capable students from ethnic minority groups and low income families. Thus, EOP is interested primarily in Afro-Americans, American Indians, Mexican-Americans, and members of other groups who have experienced special disadvantages in society. The program is geared to overcome the three major obstacles to higher education that exist in depressed areas: (1) the financial gap, (2) the communication gap, and (3) the cultural gap. To qualify for this program a student must be a Nevada resident and preferably a graduate of a Nevada high school.

Upward Bound is a precollege preparatory program designed to generate the skills and motivation necessary for postsecondary education/training among young people from educationally disadvantaged backgrounds. The program maintains a student for three years including a bridge summer (that summer after high school graduation and before enrollment in the University) when the student is enrolled in regular college courses. Once the individual enters the University as a regular undergraduate student, the Upward Bound staff provides assistance in orientation to University procedure and policy.

Financial Aid—Scholarships—Awards*

Financial Aid

General Purposes

The University provides an established financial aids program so that qualified students will not be denied an education because of financial need. Aids such as scholarships, assistantships, awards, grants-in-aid, 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 education.

Financial aids are offered to qualified students who hold promise or have demonstrated their ability to successfully engage in the pursuit of a higher education and who have need of assistance in meeting educational expenses. This need may be overcome through a single financial aid or any 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 of Nevada will continue to enlarge upon and refine its program of financial aids to students. It is only with the assistance of 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 assistance for students is administered by the Director of Financial Aid located in the Student Services Center.

Qualifications

Most financial aid is predicated upon the applicant maintaining at least a C average (undergraduate) and being regularly enrolled as a full-time student (12 or more semester credits). Students enrolled for half time or more are eligible for certain 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.

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 his 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, Nursing Student Loan/Scholarship, Health Professions Student Loan/Scholarship, Law Enforcement Loan, Supplemental Educational Opportunity Grant, and the College Work-Study Program are required to complete and submit the ACT Family Financial Statement as well as the University's Financial Aid Application. Entering freshmen may secure the ACT-FFS and the Financial Aid Application from their local high school counselor. All other students may obtain the FFS from the University's 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 are readily available to qualified students for bona fide emergencies.

2. University loans normally payable within a year or before graduation (whichever is first), are 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 are 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.

(d) Law Enforcement Education Program Loans.

4. 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 of Nevada. 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.

*Refer to the Financial Aid Calendar for deadline dates.

Student Loan Funds

Specific university loan funds are assigned by the Director of Financial Aid to those students who qualify and 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.

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

Max C. Fleischmann Foundation Loan Fund (1957)
For qualified students in agriculture or home economics. No interest charges. College of Agriculture. Repayment: up to five years after graduation or termination.

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 simple interest. Apply to Director of Financial Aids 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 Aids with recommendation of Dean, Mackay School of Mines. Repayment: within one year after graduation or termination.

Law Enforcement Education Program Loans
The Law Enforcement Education Program makes available ten-year, low interest bearing (7 percent) notes of up to $1,800 per academic year to full-time students enrolled in undergraduate or graduate programs leading to a degree in areas directly related to law enforcement. These loans may be cancelled at the rate of 25 percentum for each year of full-time employment in a public state, local, or federal law enforcement agency.

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: thirty to sixty 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.

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

United Student Aid Funds (1962) and *Nevada Higher Education Loans* (1969)
For qualified freshman, sophomore, junior, senior, or graduate students attending the University of Nevada. Maximum loan of $1,500 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 character" in financial need. Maximum loan is $300 at no interest. Repayment: up to seven years after date of loan.

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

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

Grants - In - Aid

Grants-in-Aid such as the Basic Educational Opportunity Grant, the Supplemental Educational

Opportunity Grant, the Nursing Scholarship Program, Health Professions Scholarship Program, and the Law Enforcement Grant are outright gifts to help students defray educational expenses. Grants are awarded primarily based on 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 in a full course of study and 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, Student Services Center.

The Work-Study Program, under the Higher Education Act of 1965, is available to those full-time entering or returning students who can qualify on the basis of financial need. Under this program students may be assured work in their major areas which is related to their educational or vocational objectives. Each participant is limited to no more than an average of fifteen hours of work per week when classes are in session. Applications should be submitted to the Director of Financial Aid.

Deferred Payment Option

Contracts for deferred payment of fees and/or tuition as well as board and room are available through the Controller's Office to regular students registered for seven (7) credits or more. Slightly more than one-half (½) of the total due is payable upon registration. The balance is due and payable within five (5) weeks of registration day. Thereafter, a grace period of one (1) week follows with an assessed late fee of $1 for each of the five working days during the grace period. If final payment is not made prior to the end of the grace period, the student's registration is cancelled.

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 2.75 grade-point average (on a four-point scale) for all college work with at least one semester completed at the University. Applicants for regular freshman scholarships must have completed high school in Nevada with a B or better average in the academic course work attempted and must score sufficiently high in the American College Testing Program.

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

Type I Awards

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

Jewitt 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
Mabel McVicar Batjer Memorial Scholarship, $100
Josephine Beam Educational Fund Freshman Scholarships, $250-$500
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
Bob Davis Memorial Scholarships, amount variable
District III Freshman Scholarship, $500
Max C. Fleischmann Freshman Scholarships, $250-$500
Max C. Fleischmann General Scholarships, $250-$500
The Luke B. Hancock Foundation Scholarships, amount variable
Grand Army of the Republic Scholarships, $100
Herman and Herman Scholarship, $50 or more
Harry F. Holmshaw Freshman Scholarships, $250-$500

Alan Ladd Johnson Scholarships, amount variable
Willard J. Larson Scholarship, $250-$500
Rose Siegler Mathews Scholarships, $100
Perle Mesta Scholarship, $100 or more
Lloyd and Martha Mount Memorial, $500
Florence Polish Memorial Scholarship (junior or senior student in Education), amount variable
Reno Business and Professional Women's Club in memory of Dr. Christie Brown and Felice Cohn Scholarship, $200
Soroptimist Club of Reno Scholarships, $500
Frederick Stadtmuller Memorial Scholarships, $100
Frederick and Anna Stadtmuller Memorial Scholarships, amount variable.
Jerry Tyson Freshman Scholarships, $250-$500

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
Robert A. Hanson Memorial Scholarship in Agriculture, amount variable
Isabelle M. Murphy Memorial Scholarship (female junior or senior, Nevada resident), $200
E. J. Questa 4-H Agricultural Scholarships, amount variable
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
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

Alliance Française du Nevada, amount variable
Morgan Anglim Memorial Scholarship in Humanities, $100
Armanko Office Supply Company Scholarships in Chemistry and Physics, $100
Kate L. Bartholomew Scholarship, Journalism, $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
Delta Zeta Sorority Scholarship in Speech and Hearing, $100
Dr. Francis Dean Memorial Scholarships, Nevada born premedical major, $150
Downtown Reno Sertoma Club Clinical Assistantship in Speech Pathology and Audiology in Memory of John-Douglas Robb, $2500
Teddy "Bear" Havas Motors Scholarships, $500
Houghton Foundation Scholarship in Art and Music, amount variable
ean A. Kelly Memorial Scholarship in Speech and Hearing, amount 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
Martin and Martin Scholarship in History and Political Science (female completing sophomore or junior year), $50
Wilbur May Foundation Scholarships in Art, $100-$250
C. W. F. Melz Foreign Language Fellowship, amount variable
Agnes B. Momand Scholarships in Music, $50 or more
Joe E. Moose Scholarships in Physics and Biology, $100
Nevada State Golf Assoc. and James Schuyler Memorial Scholarship, amount variable
Nevada State Press Association Scholarship in Journalism, $250
Nugget Friends Scholarship, $250
Physical Education Major Scholarship, $100
Political Science Scholarship, $500
Premedical-Prenursing Scholarship, $100
Reno Advertising Club Scholarship in Journalism, up to five, $250 each
Reno Emblem Club 372 Scholarships, amount variable
Reno Newspapers, Inc., Scholarships in Journalism, $100
Donald W. Reynolds Scholarship in Journalism, $1,000
John-Douglas Robb Memorial Scholarship (first-year male law student, graduate of U of N, Reno, major in Political Science), $500
Robert A. Simpson Memorial Scholarship in Music, amount variable
Scripps Scholarship in Journalism, up to five, $250 each
John and Louise Semenza Memorial Scholarship in Social Services, $400
Mary Elizabeth Talbot Memorial Scholarship in Mathetmatics, $300
Reuben C. Thompson Scholarship in Philosophy, $100
Lt. Fred Williams Memorial (upper division male student), $200
Fuji Woon Scholarship in French, $100
Kenneth W. Yeates Scholarship in Psychology, $500

College of Business Administration

Mr. and Mrs. O. G. Bates Scholarship, $150-$250
CPA Wives of Northern Nevada Scholarship in Accounting, $100
Myron Frank Scholarships in Business Administration, $250
Paul Hammel Scholarship in Insurance, $500
Kafoury, Armstrong, Bernard & Bergstrom Scholarship in Accounting, $250

National Association of Accountants, Reno Area Chapter Scholarship, $100
Nevada Society of Certified Public Accountants Scholarship in Accounting (the outstanding junior accounting student), $200
Northern District of Nevada Society of Public Accountants, $100

College of Education

Special Education Scholarship, $300
Washoe Association for Retarded Children Scholarship (graduate student with 2 years' teaching experience), $33.33 per credit hour
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
Carl Otto Herz Scholarship in Electrical Engineering, $100
Royal D. Hartung Industrial Education Scholarship, $500

Sarah Hamilton Fleischmann School of Home Economics

Nevada School Food Service Assoc., $100
Nevada State Cowbelles Scholarship in Home Economics, $225
Phi Upsilon Omicron Scholarship in Home Economics, amount variable
ora M. and James F. Ryan Memorial Scholarships in Home Economics, $500

Mackay School of Mines

ASARCO Foundation Scholarship, $750
Viola Vestal Coulter Foundation Scholarship (junior or senior), $750
Oscar A. Eckman, Jr. Memorial Scholarship in Mines, amount variable
Royal D. Hartung Industrial Education Scholarship, $500
Kennecott Copper Corporation Scholarship (upperclassman in mining engineering), $1,000
Helen J. Lawrence Memorial Scholarship in Mines, $1,000
Parker Liddell Scholarship in Mines, amounts variable
Warren V. Richardson Scholarship, $400

School of Medical Sciences

Medical Scholarships, amount variable

Orvis School of Nursing

Allstate Foundation Scholarship, $400
American Legion Auxiliary, Babbitt, Nevada Scholarship, amount variable
Eugene Benjamin Company Scholarship, $150
Nevada Association of Medical Assistants Scholarship, $100
Nevada State Nurses' Association, District No. 1 Scholarship (recipient must be an R.N. and a member of District No. 1 Association), $250-$500
Nevada State Pharmaceutical Association Auxiliary Scholarship, $50
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
Reno Emblem Club 372 Scholarship, $200
Storrs Student Nurse Scholarship (sophomore student), amount variable

Department of Military Science

Department of the Army 1-, 2-, 3-, and 4-year scholarships, $100 per month' payment for books, tuition and all fees
Lemberes Award, $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. Application should be directed to the designated donor.

Buck and Randy Aiazzi Scholarship, $500
John Ascuaga Scholarships, $1000
Associated Women Students Scholarship, $50
Association of Western Hospitals Scholarships in Nursing, $500
Business and Professional Women's Club of Sparks Scholarship, $50 or more
Scott Campbell Memorial Scholarship, $250
Carson City 20-30 Club Scholarship, $100
Thomas E. Dixon Scholarship, $75
Doctors' Wives of Washoe County Scholarships in Nursing and Medical Science, $350-$500
Elko 20th Century Club Scholarship, $200
Benevolent and Protective Order of Elks Scholarship, $700
Farm Bureau Scholarship, $500
Max C. Fleischmann Indian Education Scholarships, $1,000
Max C. Fleischmann Medical School Scholarships, $2,000-$3,000
Max C. Fleischmann State Department of Education Scholarships, $50 or more
Fulbright Postgraduate Studies Abroad, travel and education costs
Gerlach-Empire PTA Scholarship, $200
Grand Lodge I.O.O.F. Scholarship, amount variable
Kiwanis Club of Fallon Scholarship, $300
Kiwanis Club of Reno Scholarship, $250
Knights Templar Scholarships, $200 or more
Lions Club of Sparks Scholarship, $50 or more
Marshall Plan Scholarship, travel and education costs
Miss Teenage Reno Scholarship, $150
National Foundation Health Scholarship, $500 or more
Nevada Federation of Business and Professional Women's Club Scholarship, $50 or more
Nevada Insurance Education Foundation, amount variable
Nevada State Medical Association Scholarship, $500
Nevada State Nurses Association Scholarship, $50 or more
Nevada Telephone-Telegraph Scholarship, $250
ONC-So. Cal. "Step to Knowledge" Scholarship, $500

Ormsby Sportsmen's Assoc. Scholarship, $100
Rebekah Assembly Scholarship, $50 or more
Reno Rotary Club Freshman Scholarship, $350
Cecil Rhodes Scholarships to Oxford University, travel and education costs
University of Nevada Sagen's Scholarship, $50 or more
Mr. and Mrs. Sol Savitt Scholarships, amount variable
Sierra News Scholarships, amount variable
Sparks Senior High School Scholarships, amounts variable
Sparks 20-30 Club Scholarship, $200
City of Sparks Scholarship to a high school graduate, $200
Standard Oil of California Scholarship for FFA Members, $300
Sunrise Hospital Women's Auxiliary Scholarship, $500
Tonopah Memorial Scholarship, $250
Veterans of Foreign Wars Ladies Auxiliary Scholarship, $150
Western Nevada Veterinary Society Scholarship, $250
Woodrow Wilson Fellowships, $2,000
Women's Christian Temperance Union, Inc. Scholarships, $50 or more
Women's Club of North Tahoe Scholarship, amount variable
Women's Faculty Club, UNR Scholarship, amount variable
Wooster Senior High School Scholarships, $100 or more

Prizes and Awards

Each year the University awards 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 (1 year's membership)
Delta Sigma Pi Business Fraternity Scholarship Key
French Medal
Herz Gold Medal Award (presented to the graduating senior with the highest 4-year scholastic record)
R. Herz & Brother Jewelry Awards (a gold watch is presented to the male and female sophomore students with the highest scholastic record)
Nevada Congress of Parents and Teachers Award, $100
Nevada Society of Certified Public Accountants Awards, $200
Robert Petrini Award in Journalism, Silver loving cup
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 State 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's enrollment. Recipients of these grants-in-aid must be residents of Nevada. Those selected are not required to pay the basic registration fee for that semester during which they receive the award.
2. Twenty registration fee grants-in-aid may be awarded each semester to American Indian students who are residents of the State of Nevada and certified as Indians by the Bureau of Indian Affairs.
3. Widows of Nevada servicemen killed in action on or after January 1, 1961, may receive registration fee grants-in-aid for a period up to eight semesters.

In general, the granting of these grants-in-aid is based upon sound scholastic achievement, financial need, and the rendering of special service to the University. Application forms may be obtained from the Director of Scholarships, University of Nevada, Reno. Applications for the fall semester must be received not later than August 1. 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 August 1. 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

view and approval of petitioning groups for ASUN recognition, planning of 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

Under ASUN's new constitution (approved by the student body in the spring of 1973) a new committee, Program and Budget, was instituted. 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. It consists of twenty senators elected from each of the 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 Student Judicial Council is designed to provide students 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 in violation 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 of Nevada (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

Any student organization which wishes to use the privileges of an activities program and use the facilities on campus 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 faculty advisers. 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, or sex is inconsistent with University policy.

Fraternities and Sororities

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

Social fraternities	*Date founded locally*
Sigma Nu	1914
Phi Sigma Kappa	1917
Sigma Alpha Epsilon	1917
Alpha Tau Omega	1921
Lambda Chi Alpha	1929
Phi Delta Theta	1972

Social sororities	*Date founded locally*
Delta Delta Delta	1913
Pi Beta Phi	1915
Gamma Phi Beta	1921
Kappa Alpha Theta	1922
Alpha Chi Omega	1971

The Interfraternity Council and the Panhellenic Council coordinate the activities of their respective groups. Information regarding fraternities and sororities and rushing procedures is available in the Office of Student Services.

Student Conduct Code

1. General Policy

Enrollment in the University carries with it obligations regarding conduct, not only within but outside the classroom, the 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.

In the government of the University, the Presi-

dent and the faculty rely chiefly upon the individual and collective self-control, sense of honor, and duty of the students. They are expected to register promptly, to pursue their studies with diligence, to attend classes regularly, and to show both within and without the University such respect for order, morality, personal honor, and the rights, both of person and of property, of others as is reasonably to be expected of good citizens.

2. Alcoholic Beverages

The storage and use of alcoholic beverages shall be permitted to students 21 years of age or over living in approved University of Nevada, Reno, housing, subject to the following conditions:

A. Students over 21 years of age may elect in each living unit to be clustered so as to facilitate enforcement of all state and local laws relative to drinking. Their being permitted to do so would result from a majority decision in which all members of that living unit participate.

B. Students who elect to cluster to enjoy the privilege of drinking have the responsibility of obeying the law (as do minor students).

C. The privilege of clustered students to drink may be revoked by the majority vote of others living in the living unit.

Any student who exhibits offensive behavior on University-owned or supervised property while under the influence of alcoholic beverages is subject to disciplinary action.

The Office of the President has the authority to designate the time and place for special events where alcoholic beverages may be served on the University campus.

Except as provided above, the storage, possession or use of alcoholic beverages is not permitted on University-owned or supervised property.

3. Firearms - Fireworks

A. Carrying or using firearms on University-owned or controlled property is prohibited, except as required for (1) educational programs, (2) use in established rifle and pistol ranges, and (3) for police and military purposes.

B. Possession and use of fireworks or pyrotechnics in University buildings, on University grounds, or fraternity and sorority houses are prohibited.

C. Students who bring firearms and ammunition must make provision for proper safeguards.

D. Students living in residence halls may be permitted to store guns and ammunition in designated areas within residence halls subject to approval by the Univeristy police.

E. Occupants of University housing, which includes fraternities and sororities, are within the City of Reno and are subject to city ordinances governing the use of firearms within the city limits.

F. Failure to abide by these rules may result in confiscation of firearms, ammunition, and pyrotechnics, and appropriate disciplinary action.

4. Search and Seizure

A. The University reserves the right for maintenance personnel or authorized University personnel to make entry and inspection of University premises occupied by students for purposes of health, safety, maintenance, or repair. Such entry is normally limited to a visual room inspection of the premises. Entry for reasons other than health, safety, maintenance, or repair must conform with Section 2 of this general policy.

B. The Dean of Students may authorize an actual search of University premises occupied by students. Such search is normally limited to instances where reliable information is submitted to the Dean of Students from which it is reasonable to believe that a designated University facility is being used for an unlawful purpose or in violation of University regulations. Searches without prior authorization must conform with Section 3 of the Search and Seizure policy guidelines, available in the office of the Dean of Students.

5. Use of University Facilities

University facilities, including campus grounds, are provided primarily for the support of the regular educational functions of the University and the activities necessary for the support of these functions. The University's functions take precedence over any other activities in the use of University facilities.

Freedom to speak and to hear is maintained for students, faculty and staff and University policies and procedures are used to provide a full and frank exchange of ideas. An effort is made to allow a balanced program of speakers and ideas.

An invitation to speak at the University does not imply that the University endorses the philosophy or ideas presented by the speaker.

University facilities may not be used for the purpose of raising monies to aid projects not related to some authorized activity of the University or of University groups, and no efforts at conversion and solicitation by uninvited noncampus groups or individuals is permitted on campus.

Regulations concerning the use and scheduling of University facilities are available in the Office of Student Services and the University Activities Office.

6. Violation of Law and University Discipline

A. Action under the Code goes forward regardless of possible or pending other administrative, civil, or criminal proceedings arising out of the same or other events.

B. The Division President causes campus action to be initiated on the basis of the criminal conviction of any person whenever applicable, otherwise, the matter is of no disciplinary concern to the University unless the student is incarcerated and unable to comply with academic requirements.

7. Administration of Student Conduct Code

A. The administration of the Student Conduct Code follows the procedures outlined in the *Rules and Disciplinary Procedures for Members of the University Community*. Copies of the *Rules and Procedures* are available in the Office of Student Services and the University Activities Office.

The initiation of the hearing process proceeds through an Administrative Officer appointed by the President. Based on recommendations of the Administrative Officer and such other considerations as may be pertinent, the President decides whether a disciplinary hearing should be conducted:

(1) By a General Hearing Officer, as otherwise provided in Section 9 of the *Rules and Procedures*. The General Hearing is closed, and the General Hearing Officer is a member of the University faculty.

(2) By a Division Hearing Committee as provided in Section 10 of the *Rules and Procedures*. The Division Hearing Committee is the Student Judicial Council as authorized by the ASUN Constitution.

(3) Before a Special Hearing Officer of the Division as provided in Sections 11, 12, 13, and subsequent sections of the *Rules and Procedures*. The Special Hearing Officer must be a local attorney who presides over a Special Hearing Committee whose members are drawn from the Student Review Panel (2-4) as constituted by the ASUN Senate and the Faculty Review Panel (1) as constituted by the Faculty Senate.

B. **IFC and Panhellenic** — The Interfraternity Council and Panhellenic are the respective governing bodies of the fraternities and sororities. They may hear cases arising from violations of their constitutions for adjudication and imposition of sanctions.

C. **Residence Hall Associations** — Student judiciaries within residence halls may hear cases arising from violations of hall policies for adjudication and imposition of sanctions. The President of the University determines the scope of their jurisdiction for cases involving violations of University policies.

8. Proscribed Conduct

A. **Rules and Procedures for Members of the University Community**

The following forms of conduct, being incompatible with the purposes of an academic community, are prohibited for all members of that community and lead to sanctions and procedures as described.

(1) The use of, or threat to use, force or violence against any member or guest of the University community, except when lawfully permissible.

(2) Interference by force, threat or duress, with the lawful freedom of movement of persons or vehicles on the University premises.

(3) The intentional disruption or unauthorized interruption of functions of the University of Nevada System, including but not limited to classes, convocations, lectures, meetings, and recruiting interviews on or off University property.

(4) Willful damage, destruction, defacement, theft, or misappropriation of property belonging to the University or to a member of the University community.

(5) Knowing possession on any University premises of any firearms, explosives, dangerous chemicals, or other instruments of destruction, or other dangerous weapons as defined by laws of the State of Nevada, without written authorization of the chief administrative officer of the campus or his authorized agent unless such possession relates to duly recognized University functions by appropriate members of the faculty, staff or students.

(6) Continued occupation of buildings, structures, or grounds belonging to the University after having been ordered to leave by the president of the University or the designated chief campus officer present.

(7) Forgery or alteration or destruction of University documents or furnishing of intentionally falsified information in documents submitted to the University of Nevada System or making intentionally false accusations against any member of the University community by the filing of a complaint or charges under these rules.

(8) The repeated use of obscene or abusive language in a classroom or public meeting where such usage is beyond the bounds of generally accepted good taste and which, if in a class, is not significantly related to the teaching of the subject matter.

(9) Willful incitement of persons to commit any of the acts herein prohibited.

(10) Disorderly, lewd or indecent conduct occurring on-campus or at a University recognized or University group sponsored activity off-campus.

(11) Any act prohibited by local, state or Federal law which occurs on a University campus or at a University sponsored function.

(12) The use of threats of violence against a faculty member or his family in order to secure preferential treatment for grades, loans, employment or any other University service or privilege.

(13) Any other conduct which violates applicable stated policies or rules of the divisions of the University of Nevada System.

B. **Other University Regulations**

The following are subject to disciplinary action:

(1) Storage, possession, or use of alcoholic beverages by minors, or violation of the Alcoholic Beverage Policy.

(2) Dishonesty, such as cheating or plagiarism.

(3) Conduct which endangers the health or safety of any member or guest of the University community.

(4) Illegal possession of keys, or unauthorized entry into or use of University facilities, including buildings and grounds.

(5) Violation of University policies and regulations governing residence in University-owned or controlled property, including responsibility for the conduct of invited guests.

(6) Storage, possession, use, distribution, sale, barter, manufacture, exchange, or giving away of stimulant, depressant, narcotic, or hallucinogenic drugs, or other dangerous drugs such as marijuana, LSD (lysergic acid diethylamide), amphetamines, barbiturates on University-owned or controlled property, except as expressly permitted by law.

(7) Failure to comply with the directions of University officials acting in the performance of their duties.

(8) Failure to comply with directions of University police acting in performance of their duties and to identify one's self to these officials when requested to do so.

9. Procedural Standards in Discipline Proceedings

A. Any administrative or academic official, faculty member, instructor, parent or guardian, or guest may file charges against any student for proscribed conduct. Charges must be submitted to the Administrative Officer for evaluation and referral to the President as defined in 7A.

B. No disciplinary sanctions may be imposed upon any student without notice to the accused of the nature and cause of the charges and opportunity for a fair hearing. The Administrative Officer is authorized to apprise the accused student of his rights under the provisions of the *Rules and Procedures*.

C. The person charged may waive a hearing and accept a sanction as recommended by the Administrative Officer and approved by the Division President.

D. All charges must be presented to the accused student in written form. A time must be set for the hearing which is not less than five (5) days and normally within seven (7) days unless this requirement is waived by the student.

E. Extensions of time for hearings are authorized by the Division President only for good and compelling reasons. The possibility or pendence of other administrative, civil or criminal proceedings against the person charged is not such a reason unless the trial or hearing in that matter is scheduled for the same day as the University hearing, or unless it is physically impossible for the person charged to attend the University hearing.

F. The judicial bodies may formulate procedural rules which are not inconsistent with the provision of the *Rules and Procedures*.

G. Hearings must be conducted in such manner as to do substantial justice.

(1) Division and Special Hearings are closed unless the student charged requests an open hearing. General hearings are closed.

(2) In hearings involving more than one student, severance is granted upon request.

(3) An accused student has the right to be represented by counsel or an adviser who may come from within or without the University.

(4) An accused student may request the privilege of presenting witnesses subject to the right of cross-examination by the other parties.

(5) Production of records and other exhibits may be required.

H. A tape recording is kept of the Special Hearings; however, other hearings may be recorded by the Administrative Officer.

I. Appeals

(1) Appeals from the decision of the Division President must be filed by the person charged within three college working days of the receipt of the decision. The appeal must be in writing and directed to the Administrative Officer.

(2) The facts set forth in the appeal must reasonably establish that:

(a) The person charged did not have adequate opportunity to prepare and present his defense; or

(b) The evidence presented at the hearing was not substantial enough to justify a decision; or

(c) The sanction imposed was not in keeping with the gravity of the violation.

(3) Decision on Appeal

The Administrative Officer must direct the appeal to:

(a) The Division President for reconsideration when the sanction imposed is suspension or a lesser sanction.

(b) The Board of Regents for action when the sanction imposed is expulsion.

J. All procedures for handling disciplinary cases arising from this Code must be drawn from the *Rules and Disciplinary Procedures for Members of the University Community*.

10. Sanctions

A. **Warning:** Notice, oral or written, that continuation or repetition, within a stated reasonable period of time, of conduct found wrongful may be the cause for more severe disciplinary action.

B. **Censure:** A written reprimand for violation of a specific regulation, including the possibility of a more severe disciplinary action in the event of conviction for a later violation of a University regulation committed within a stated reasonable period of time.

C. **Restitution:** The requirement to reimburse the legal owner for loss due to defacement, damage, or misappropriation of funds or property.

D. **Probation:** A trial period not exceeding one year. Probation may include exclusion from participation in privileged or extracurricular University activities. The person placed on probation must be notified, in writing, that repetition of the act or other acts prohibited by these rules will lead to more severe sanctions. The official transcript of the student is noted "DISCIPLINARY PROBATION" for the period of the probation and any exclusions noted; the parents are notified of the action for students under majority age.

E. **Suspension:** Exclusion for a definite period of time from attending classes and participating in other University activities as set forth in a notice to the student. The official transcript of the student is noted "DISCIPLINARY SUSPENSION EFFECTIVE ..... TO ......"; the parents are notified of the action for students under majority age.

A student who is not currently enrolled at the University and who was not registered during the previous semester or who graduated at the end of the previous semester may request that the notation of the disciplinary suspension be removed from his permanent record when two years have elapsed since the expiration of the student's suspension. Such request must be submitted in writing to the president. If the request is not granted, the student may submit another request after one year.

F. **Expulsion:** Termination of student status for an indefinite period of time. Permission of the President of the University is required for readmission. The official transcript of the student is noted "DISCIPLINARY EXPULSION EFFECTIVE ....."; the parents are notified of the action for students under majority age.

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.

Committee on the Philosophy of Inquiry (C.O.P.I.)

The Committee on the Philosophy of Inquiry 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 *Views of Man, Science and Religion, Value Aspects of Social Accounting Systems,* and *Persons, Meaning and Value*. With the cooperation of several departments, these courses and others have been established under the auspices of the committee.

The courses offered include upper-division and graduate seminars, single-discipline courses with the participation of faculty from other areas, and 900-level graduate courses. Honors credit is available where appropriate for those who wish it. Minor programs for graduate degrees and interdisciplinary introductory lectures are under development.

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.

Environmental Studies

Traditional academic and professional programs are designed to deal effectively with many of the pressing problems of society; however, those areas requiring articulated input from several fields are often inadequately treated. One such area involves the problems of the environment, resource, and energy use. The Environmental Studies Board was created to provide a forum within the University for consideration of these problems, many of which overlap or affect several conventional disciplines. The board is authorized to develop courses designed for students who wish to expand their awareness and ultimately their effectiveness as individuals and in their later professional work into this challenging and essential domain.

The curriculum is under steady review and development and consists of courses that are cross-listed where possible with other departments and a few broadly based courses that are not cross-listed. Presently, there is no plan to offer a major in environmental studies, but the board expects to coordinate a minor field of environmental studies and also to encourage development of extended majors with admixtures of environmental and other courses in partial substitution for some courses in the conventional programs. The board plans to encourage environmentally oriented graduate research based upon any of the conventional disciplines within the academic and professional departments of the University.

A listing of the special courses in this area is shown under Environment. Other related courses appear in the departmental listings.

Additional information may be obtained by contacting Dr. Robert Gorrell, Room 217, Physics Building.

Ethnic Studies

The Ethnic Studies Program offers an opportunity for the students of the University of Nevada, Reno, to gain an awareness of the varied cultures, experiences, and contributions of Asian Americans, Black Americans, Spanish-speaking

(Chicano) American, 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, social services and corrections, sociology, and psychology. 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.

Additional information is available upon request from Dr. Michael S. Coray, Room 104, Mack Social Science Building.

Health Sciences

The Health Sciences Program was initiated in 1969 to consolidate the development and administration of various course offerings and programs in the health field on the Reno campus. The program is administered by a Health Sciences Council, composed of the Deans of Education, Medical Sciences, and Nursing. The Director of the Health Sciences Program is responsible for the development and supervision of the instructional programs. The Division of Educational Support and Communications supports the program through multimedia instructional facilities.

The Health Sciences Program serves to prepare students to enter various professional programs in the health field as well as to function effectively as members and/or leaders of interdisciplinary health teams. An interdisciplinary faculty representing the health professions develops the common core curricula for all the Health Sciences. Collaborative planning also provides for sharing of a multimedia instructional communication system, library resources, self-learning centers, and research space and facilities. The program serves students on a University-wide basis.

The Health Sciences Program complements the curricula offered by the School of Medical Sciences, the Orvis School of Nursing, and the health oriented programs of other colleges on the Reno campus. The teaching-practicing interdisciplinary faculty plan learning experiences which reinforce both the student's major field and the values inherent in cooperative endeavors with other health personnel.

Students enrolled in health sciences (medicine, premedicine, predentistry, prepharmacy, medical technology, nursing, prephysical therapy, health education, etc.) fulfill general University requirements, the basic natural and behavioral sciences pertinent to their intended area of specialization, and a series of interdisciplinary core courses. The core courses are designed to assist those entering the health field to (1) become aware of their roles as members of health teams; (2) know the major health problems faced by communities, families, and individuals; (3) know the resources for helping to overcome these problems; (4) attain skills in the clinical areas, which complement their intended area of specialization; and (5) become agents capable of continuing improvement in the health care delivery system; and (6) develop patterns for long life learning.

The courses comprising the core curriculum are shown under the health sciences course listings by classification level.

Additional information is available upon request from Dr. DeWitt C. Baldwin, Jr., Room 300C, Mackay Science Building.

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.): Anthropology 440; Economics 410, 481; History 300; Philosophy 494; Political Science 323-324; Psychology 408; and Sociology 408, 497.

Related Courses (Each student must take one or two of these courses exclusive of those taken within the major field.): Anthropology 312; Economics 463-464; History 377-378, 403-404, 427; Philosophy 203, 314, 322, 325, 401; Political Science 326, 421, 423; Psychology 473; and Sociology 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 Dr. Robert M. Gorrell, 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 Honors 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 considered on the basis of their work at the University of Nevada, Reno. Normally, each student must maintain a 2.8 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 (900-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 3.00 (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 upon request from Dr. R.B. McKee, Room 103, Palmer Engineering Building.

National Student Exchange Program

The University of Nevada, Reno, is a member of the National Student Exchange. 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 N.S.E. encourages students to experience new life-styles and appreciate various cultural perspectives.

Nevada residents may apply for exchange in their sophomore or junior year to one of several regionally accredited institutions across the United States (currently 24 schools participate). A minimum 2.50 cumulative grade-point average is required and, if accepted, the student pays in-state fees at the school he attends.

Information and applications may be obtained from Dr. Robert G. Kinney, Room 103, Thompson Student Services Center.

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 department's requirements for related subject areas) chosen from Anthropology 322, 339; Biology 355; English 333, 337, 339; History 317, 318, 371, 373, 374; Health Sciences 380, 381; Philosophy 112, 201, 323, 401, 404; Sociology 333.

Additional information is available upon request from Dr. Robert M. Gorrell, Room 217, Physics Building.

Study Abroad

The University of Nevada, Reno, 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). 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 Paris for students with no prior knowledge of French and students with one year of college German or equivalent may be accepted in a special fall semester program in Freiburg.

Programs of study must be approved by the student's adviser, the chairman of the department of his major, and a screening committee. Financial aid is available. Further information and application forms may be obtained from Dr. Charles V. Wells, *Coordinator for the Institute of European Studies*, Room 217, Physics Building.

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 of Nevada, Reno, may be obtained from the *Coordinator*.

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.

Advisement for teacher education programs is offered through the Departments of Elementary and Special Education and Secondary Education and the Dean of the College of Education, in cooperation with department chairmen and deans of the Colleges of Arts and Science, Agriculture, 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, 2nd and Carson Streets, Carson City, Nevada. 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. Edmond J. Cain, Room 101, Education Building.

Western Interstate Commission For Higher Education (WICHE)

The State of Nevada participates in the Student Exchange Program operated by the Western Interstate Commission for Higher Education, under which legal residents of western states without a professional school in the field pay the same tuition and fees as residents of the State in which the professional school is located. Fields of participation are dental hygiene, dentistry, medicine (third and fourth year), optometry, physical therapy (senior year plus clinical experience), and veterinary medicine. To be certified as eligible for this program, the student must be a resident of Nevada for at least six months prior to application. The number of students who can be so accommodated depends upon appropriated funds available. For information and application forms contact WICHE Office, 405 Marsh Avenue, Reno, Nevada, 89502, or call at Office of Student Services, Room 103, Thompson Student Services Building, Reno campus.

Max C. Fleischmann College of Agriculture

DALE W. BOHMONT, *Dean*

The College of Agriculture consists of three segments: School of Agriculture, Agricultural Experiment Station and Cooperative Extension Service. Operations of the School of Agriculture are discussed in this section.

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; study, investigate, and build a store of knowledge concerning the problems of agriculture, the agricultural and related industries, and in areas of family living; and to gather, interpret, and transmit knowledge to the people of Nevada.

School of Agriculture

Associate Dean: Charles H. Seufferle

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 humanlife." 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 of Agriculture provides resident instruction in various areas of agricultural science at both the technician and professional levels. Studies in the agricultural, biological, and physical sciences are coordinated with the liberal arts, 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 interest and abilities. Programs designed to meet the needs of individual students are provided through judicious selection of elective courses to supplement courses required in the various major areas of work.

Degrees are offered at three levels by the various instructional divisions in the School of Agriculture — the associate degree program, the baccalaureate program, and the graduate degree program. Shorter duration certificate programs are available in specialized subject matter areas as part of the Associate Degree program.

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 four major areas: agricultural mechanics, agricultural marketing technology, farm and range 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. Preveterinary science and animal science are options in the animal science major. The industrial mechanics unit offers options in agricultural mechanics, industrial mechanics, and 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, and watershed management.

Graduate Program

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.

Instructional Divisions

Agricultural and Resource Economics Division

Faculty: Barmettler (Acting Chairman), Champney, Ching, Garrett, Malone, McNeely, Radtke, Seufferle

Animal Science Division

Faculty: Bailey, Behrens, Bohman (Chairman), Drake, Ely, Foote, Lesperance, Marble, Papez (Adjunct), Radmall, Reynolds, Ringkob, Speth, Stein, Taylor, Torell, Weeth

Biochemistry Division

Faculty: Arnett, Blincoe, Heisler (Chairman), Lauderdale, Lewis, Morris, Pardini, Payne, Smith, Welch

Industrial Mechanics Division

Faculty: Bettis, Butler, Herndon (Chairman), Squires

Plant, Soil, and Water Science Division

Faculty: Bohmont, Cords, Gallian, Gifford, Guenthner, Hartman, Jensen, Mahannah, Maxfield, Miller, Peterson, Post, Ruf, Young (Chairman)
Adjunct Faculty: Dixon, Howland, Hunt, Sakamoto, Stuart

Renewable Natural Resources Division

Faculty: Artz, Beall, Blackburn, Klebenow, Miller (Chairman), Skau, Shanks, Tueller
Adjunct Faculty: Christensen, Eckert, Evans, Groves, Meeuwig, Tiernan, Trelease, 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 concentrated in a particular subject matter area.

The associate degree programs differ appreciably from the baccalaureate program in terms of admission requirements and course content. A high school diploma or equivalent in terms of appropriate test scores is required for admission to this program. The grade-point average and subjects specified for admission to the baccalaureate program are not required. All new students are required to complete the American College Test (ACT) prior to the beginning of orientation week. Courses numbered below 100 are designed especially for this program and are shown in the listing of course offerings in this catalog. Students enrolled in this program have the same rights, privileges, and responsibilities as students in the baccalaureate program. However, credit earned in courses numbered below 100 is not transferable to the baccalaureate program.

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 26 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 (English 14, 50)	6
Constitutional government (History 111 or Political Science 103)	3
Basic agricultural subjects (Agriculture 20, 21 or 150, 30)	6
Basic business courses (Accounting 20, Managerial Sciences 64, 67, or 71)	9
	24

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

Agricultural Marketing Technology Major

This major is designed primarily for students planning to go into business selling either to ranchers or to ultimate customers of agricultural products (e.g., the feed store selling to the rancher or the supermarket selling produce, lawn and garden supplies, etc., to the housewife.)

Group II Requirements	*Credits*
Agricultural and Resource Economics 80	3
Industrial Mechanics 15, 121	4
Biochemistry 120	4
Managerial Sciences 11, 63, 72	9
Electives	20
	40

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*
Industrial mechanics courses	21
Electives*	19
	40

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

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*
Agricultural and Resource Economics 80	3
Industrial mechanics electives	10
Animal Science 100	3
Biochemistry 120	4
Managerial Sciences 72	3
Plant, Soil, and Water Science 120, 164	6
Electives	11
	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*
Industrial Mechanics 115	3
Biochemistry 120	4
Plant, Soil, and Water Science 120, 161, 162, 163, 164, 166, 260, 262	26
Electives	7
	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 credits allowed for their 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 of the school. (Group I requirements do not apply to students in the preveterinary science program who take a special program designed to prepare them for admission to another

institution for completion of the veterinary science degree.)

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.)

University Requirements

The following are required for all students in the University:

Subject	*Credits*
English 102*	6
Military Science	0-1
U.S. and Nevada Constitutions†	(3-6)
	6-7

School of Agriculture Requirements

Group I Requirements

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

Group I Requirements	*Credits*
Speech and Theatre 113	3
Social sciences, arts, and humanities (may include courses to meet constitution requirements)	15
Mathematics and/or principles of physics	8
Biology 101, 201 or 202; Chemistry 101 or 171	11
Agricultural and Resource Economics 202 or Economics 202	3
Basic agricultural resources (any three of the following courses: Animal Science 100; Plant, Soil, and Water Science 100; Renewable Natural Resources 100; Agricultural and Resource Economics 100; Industrial Mechanics 100)	9
	49

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

Agriculture Major

The undergraduate agriculture major contains 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
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
Biochemistry 120	4
Entomology 391 or Zoology 359, 360	3-4
Electives	31
	72-73

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*
Journalism 101, 221, 280, 351, 356, 372, 375	17
Journalism 481, 482 (internship in two or more areas), electives (4 credits)	10
Agriculture electives (must include at least one course in each division of the school)	21
Electives	24-25
	72-73

Pest Control Option: This program is designed to give the student a broad educational basis for identifying and solving problems of pests affecting man, his 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*
Agriculture 270	3
Entomology 391, 392, 400, 412, or 422	7
Plant, Soil, and Water Science 261, 355, 356, 471	13
Biology 351; Botany 322, 355; Chemistry 142; Zoology 340, 359, 381	24
Electives (include 5 or more upper-division credits)	25-26
	72-73

Agricultural and Resource Economics Major

Students enrolled in this major may elect an option in either economics or business.

Economics Option: This curriculum provides a solid foundation in economics related to agriculture and natural resources. The curriculum prepares stu-

*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.

†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.

dents to work in farm and ranch management, agricultural and related industries, natural resources management, and community development. Students completing this curriculum are well prepared to continue on in graduate work in agricultural and resource economics.

Group II Requirements	*Credits*
Agricultural and Resource Economics 321, 332, 400, 411	10
Electives in agricultural and resource economics	9
Economics 201, 202, 303, and 321 or 322	12
Agriculture 270; intermediate statistics or econometrics	6
Accounting 201; Business Administration 373	6
Speech and Theatre 329	3
Mathematics 160 (may be taken under Group I)	3
Electives	23-24
	72-73

Business Option: This program, offered cooperatively with the College of Business Administration, combines the fundamentals of business and economics with a basic background in agriculture. This curriculum encompasses five areas of economics and business adminstration 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.

Group II Requirements	*Credits*
Agricultural and Resource Economics 315, 332, 400, 421	10
Economics 201, 202, 303, and 321 or 322	12
Agriculture 270; Mathematics 160 (may be taken under Group I)	6
Accounting 201 and 202 or 303; Business Administration 373	9
Managerial sciences	3
Speech and Theatre 329	3
Electives—Agricultural economics, economics, or any area of business	12
Electives—other	17-18
	72-73

Animal Science Major

The animal science major has optional areas in either animal science or preveterinary science.

Animal Science Option: Students selecting this option prepare for careers in many fields of animal science and related areas such as livestock production, business, education, research, and services related to livestock. Beef cattle ranching, meat processing and production, livestock extension, university teaching and research, livestock consultants, market livestock 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*
Animal Science 104, 207 or 308, 211, 307, 400, 405, 406, 410	24
Renewable Natural Resources 341 or Plant, Soil, and Water Science 304 or 355	3
Biology 351; Zoology 309	9
Chemistry 142 or 243, Biochemistry 301; or Chemistry 172, Biochemistry 271, 272	6-12
Electives	24-31
	72-73

Preveterinary Science Option: The preveterinary curriculum prepares the student for entry into a veterinary college. The option may be completed in three or four years. Each college of veterinary medicine requires different courses. Our curriculum must change to meet their requirements. Usually three years of college work are required before admission to a veterinary college. Preveterinary students must transfer to another university for completion of the veterinary science degree and are therefore excluded from the program required by regular students. Preveterinary students may complete the requirements for a B.S. degree in animal science within a four-year period as well as the prerequisite for admission to a veterinary school by appropriate selection of electives. Requirements of the University, College of Agriculture and the Animal Science Division must be met for the B.S. degree.

The following courses are recommended:

Subject	*Credits*
Physical education (4 semesters)	4
English 101, 102	6
Chemistry 101, 102 (or 103, 104, 122), 235, 243, 244, 245, 246	20
Mathematics 102, 110, 140, 160 (or 181)	11
Physics 151, 152, 153, 154	8
Biology 101, 201, 340, 351	15
Biochemistry 301	3
Animal Science 101, 103	4
Zoology 309, 364	9
Social science and humanities	12
	92

Industrial Mechanics Major

Undergraduates majoring in the 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 is needed to obtain the maximum benefits offered by this major option.

*Group II Requirements**	*Credits*
Industrial mechanics courses	31
Marketing 310, 345	6
Accounting 201, 202	6
Management 323	3
Electives	26-27
	72-73

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*
Industrial mechanics courses	31
Agricultural Economics 315, 411	6
Animal Science 211	3
Electives—animal science	3
Electives—biological and/or physical sciences	6
Electives—plant, soil, and/or water science	6
Electives—other	17-18
	72-73

Agricultural and Industrial Mechanics Education Option: The course of study is designed to prepare students for high school teaching. On completion students are eligible for vocational secondary education teaching certificates.

*Group II Requirements**	*Credits*
Industrial Mechanics 144, 444, 446, 447, 457	17
Agricultural and resource economics electives	3
Industrial mechanics electives	12
Animal Science 405 or Biology 340	3 or 4
Plant, Soil, and Water Science 222, 164 or 304, electives (3)	10
Animal Science 303, electives (7)	10
Agriculture electives	8
Electives—other	8-10
	72-73

Plant, Soil, and Water Science Major

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

Group II Requirements	*Credits*
Plant, Soil, and Water Science 222, 304, 306, 325, 344 or 441, 400	15
Agricultural and resource economics courses	6
Biological sciences (may include Plant, Soil, and Water Science 471, Entomology 391)	8
Renewable natural resources courses	6
Plant, soil, and water science electives	15
Electives	22-23
	72-73

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.

*Psychology 101 and 391 should be included as part of Group I.

*Agricultural education students should include the following courses in meeting Group I requirements: (a) electives in arts, humanities, or social sciences should include Education 103; History 111 or Political Science 103; Psychology 101, 231; Counseling and Guidance Personnel Services 440.

Group II Requirements	*Credits*
Plant, Soil, and Water Science 222, 304, 344, 422, 446	15
Six credits selected from Plant, Soil, and Water Science 331, 441, 444, 445	6
Six credits selected from Civil Engineering 241, 242, 367, 368; Mechanical Engineering 150, 241	6
Agricultural and Resource Economics 466	3
Agriculture 270	3
Botany 355; Chemistry 142	7
Mathematics 181, 182, 281; Physics 151, 152, 153, 154, or Physics 208, 209, 210 (less 8 credits in Group I)	12
Electives	20-21
	72-73

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 this option should be well prepared for graduate study or positions requiring a strong background in the plant sciences.

Group II Requirements	*Credits*
Plant, Soil, and Water Science 222, 304, 306, 325, 327, 356, 400, 471	22
Agriculture 270	3
Agricultural and resource economics courses	3
Biology 340 or 351; Botany 322, 355	12
Entomology 391, 392	3
Chemistry 102, 142	8
4 credits of mathematics, 4 credits principles of physics (less 8 credits in Group I)	0
Electives	21-22
	72-73

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.

Group II Requirements	*Credits*
Plant, Soil, and Water Science 222, 304, 306, 325, 327, 344 or 441, 400, 421, 422	24
Agriculture 270	3
Botany 355; Biology 351 or Botany 322 or Plant, Soil, and Water Science 471	8
Chemistry 103, 104, 122 (or 101, 102, 330); 142 (less 4 credits in Group I)	9
Biochemistry 301; Geology 101	7
4 credits of mathematics, 4 credits principles of physics (less 8 credits in Group I)	0
Electives	21-22
	72-73

Renewable Natural Resources Major

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, or watershed management. 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 interest 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.

Requirements include one summer's internship or 3 credits of independent study and the achievement of a 2.25 grade-point average or above in all major courses excluding special problems. Additionally, a $5 fee is charged for each laboratory course.

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.

Group II Requirements	*Credits*
Core: Agriculture 270; Biology 280; Geology 101; Plant, Soil and Water Science 222; Renewable Natural Resources 101, 100, 101, 292, 293, 302, 420, 493, 494	36
Option: Renewable Natural Resources 301, 303 or 401, 391, 402, 482, 216 or 316 or 416 or 480	13-16
Electives	20-27
	72-76

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.

Group II Requirements	*Credits*
Core: Agriculture 270; Biology 280; Geology 101; Plant, Soil, and Water Science 222; Renewable Natural Resources 100, 101, 292, 293, 302, 420, 493, 494	36
Option: Chemistry 142; Mathematics 110; Renewable Natural Resources 341, 216 or 316 or 416 or 480	7-10
Vertebrate biology and classification (e.g., Zoology 331, 335, 337)	6
Physiology (e.g., Botany 335, Zoology 346, Animal Science 410)	3-4
Wildlife management (e.g., Renewable Natural Resources 421, 423, 425; Zoology 470)	6
Electives	10-18
	72-76

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.

Group II Requirements	*Credits*
Core: Agriculture 270; Biology 280; Geology 101; Plant, Soil, and Water Science 222; Renewable Natural Resources 100, 101, 292, 293, 302, 420, 493, 494	36
Option: Animal Science 211; Botany 355; Chemistry 142; Renewable Natural Resources 341, 346, 348, 441, 482, 216 or 316 or 416 or 480	25-28
Electives	8-15
	72-76

Recreation Area Management Option: The core of professional courses is oriented at the aesthetic design and functional 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.

Group II Requirements	*Credits*
Core: Agriculture 270; Biology 280; Geology 101; Plant, Soil, and Water Science 222; Renewable Natural Resources 100, 101, 292, 293, 302, 420, 493, 494	36
Option: Renewable Natural Resources 216 or 316 or 416 or 480, 361, 362, 482, 463, 464; Agricultural and Resource Economics 362 or 466	20-22
Electives	14-20
	72-76

Watershed Management Option: This curriculum prepares students for management of water yield from upland areas through cultural practices on plants and soils and use of small structures. Students entering this program are advised to obtain four years of high school mathematics and science. Permanent employment opportunities are found with consulting and industrial firms and state and federal land management agencies. Numerous opportunities also exist in research and teaching for those with advanced degrees.

Group II Requirements	*Credits*
Core: Agriculture 270; Biology 280; Geology 101; Plant, Soil, and Water Science 222; Renewable Natural Resources 100, 101, 292, 293, 302, 420, 493, 494	36
Option: Renewable Natural Resources 216 or 316 or 416 or 480, 482, 484; Plant, Soil, and Water Science 325, 331, 442	16-18
Electives	18-24
	72-76

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 precounseling, 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 curriculum tentatively approved by this committee once a year.

Group II Requirements	*Credits*
Core: Agriculture 270; Biology 280; Geology 101; Plant, Soil, and Water Science 222; Renewable Natural Resources 100, 101, 292, 293, 302, 420, 493, 494	36
Option: Courses approved in complementary areas of study	20
Electives	16-20
	72-76

Graduate Offerings

Graduate study leading to the Master of Science

degree is offered by each instructional division. Both major-minor and area of concentration programs are available. The Master's Program includes both Plan A (thesis program requiring 30 credits) and Plan B (nonthesis program requiring 32 credits). A Doctor of Philosophy degree is offered in biochemistry.

The 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 in biochemistry 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 graduate examinations are determined by the student's advisory committee. A Master's degree may be obtained either with or without a thesis requirement. A thesis may be written on research completed in animal breeding, animal health, meats, nutrition, physiology, 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 his adviser and approved by his committee. The project is designed to train the individual for increased proficiency in the livestock industry. It may consist of (a) a field study carried out under the direction of the adviser or other appropriate University staff member or (b) 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 (b) 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 (900) 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 biochemistry. Before completing the requirements for the master's degree, the student must have completed the following courses or their equivalent: one year of physics; one year of biology, botany, zoology or physiology; and Chemistry

243, 244, 245, 246, 333, 353, 354, 355, 356. 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 Study 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 students' 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 Study 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 agriculture, 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. 911 - Research Methodology, 3 credits.

Students pursuing Plan B must also complete a 2-credit professional paper (P.S.W. 996) 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 or implementation phases as they pertain to forests, range, game, recreation, or watersheds.

This program recognizes that today's complex and accelerating demands required breadth of view, 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 900 level.
3. Professional paper with 2 credits at 900 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.

College of Arts and Science

ROBERT M. GORRELL, *Dean*

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

Objectives

The College of Arts and Science offers students both the discipline and information of a traditional liberal education and specialized undergraduate and graduate training. The college encourages its students to develop intellectual curiosity and habits of creative but also disciplined thought. It attempts to provide students with the skills necessary to make their ideas significant in research and in self-expression. It offers the information necessary for clear thinking and responsible decisions, through study of man's past accomplishments in understanding himself, his environment, and his society and through inquiry into present problems and possible solutions for them.

To achieve these goals the college directs the student's education through certain broad requirements. College group requirements are intended to ensure that the student have some acquaintance with a variety of subjects in the natural and social sciences and the arts and humanities. They also ensure acquisition of the basic skills necessary to use this knowledge—skills, for example, in his own and a foreign language and in following procedures for orderly investigation. Requirements for a field of concentration 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, or Bachelor of Arts in Journalism, a candidate must earn a minimum of 128 credits in required and elective courses, including the satisfactory completion of the military science requirement. At least 40 credits must be earned in courses numbered 300 or above.

Prescribed Courses

1. Satisfaction of the military science requirement, plus satisfactory completion of courses in United States and Nevada Constitutions as required by the state law.

2. The University requirement is the completion of English 102 or its equivalent.[1]

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 mainly devoted to natural sciences and mathematics, Group II includes courses dealing with objective descriptions of man and social phenomena, and Group III includes courses directed toward the history, appreciation and practice of the arts and literature, logic and thought, and the reconstruction and interpretation of the past. The departments offering courses in the various groups are listed below.

Group I, Natural Sciences and Mathematics: Anthropology (as listed); astronomy, biology, botany, chemistry, geography (as listed); geology, mathematics (as listed); physics (including meteorology); zoology.

Group II, Social Sciences: Anthropology (as listed); economics (as listed); geography (as listed); history, journalism (as listed); political science (as listed); psychology, social services, sociology, speech and theatre (as listed).

Group III, Humanities: Anthropology (as listed); art history and appreciation, English, foreign literature, history (as listed); music history and appreciation, philosophy, speech communication, theatre and interpretation..

Freshman and sophomore students should enroll in courses from at least two of the three groups or foreign language each semester until the requirements are satisfied.

[1]Subject to provisions stated under Required Courses in this catalog.

Courses Open to Freshmen Which Satisfy Requirements

The courses open to freshmen and other students which may be used to fulfill the foregoing requirements in natural sciences, social sciences, and humanities are listed below. Some courses have prerequisites. See course descriptions.

Group I, Natural Sciences and Mathematics: Anthropology 102; Biology 100, 101, 103; Botany 104, 105; Chemistry 100, 101, 102, 103, 104, 142, 171, 172; Geography 103; Geology 101, 101a, 102, 105, 160; mathematics, all 100-level courses except 101, 173 and 174; Medical Sciences 251 and 252; physics, all 100-level courses; Zoology 103.

Group II, Social Sciences: Anthropology 100, 101; Criminal Justice 110, 120; Geography 106, 109; History 101-102, 111, 201, 202, 217; Journalism 101, 102; Medical Science 205, 280 and 281; Political Science 103-104; Psychology 101, 102; Sociology 101, 102; Social Services and Corrections 101; Speech and Theatre 210.

Group III, Humanities: Art 115, 210, 212, 215, 216, 217, 218, 256, 257; English 131, 243, 247, 261, 271; History 105-106; Music 121, 201, 202; Philosophy 110, 111, 114; French, German and Spanish 221 and Spanish 222; Speech and Theatre 200, 217, 221, 229.

Sophomore or Upper-Division Courses Which Satisfy Requirements

Courses requiring a prerequisite or sophomore or upper-division standing which may be used to fulfill requirements in natural sciences, social sciences, and humanities include:

Group I, Natural Sciences and Mathematics: Anthropology 335, 430, 435; Biochemistry 271-272 and 300-level courses; biology courses numbered above 200; botany courses numbered above 200; chemistry courses numbered above 200; Geography 212, 322, 331, 335, 423; geology courses numbered above 200; mathematics courses numbered above 199; physics courses numbered above 200; zoology courses numbered above 200.

Group II, Social Sciences: Anthropology courses numbered above 200 except 322, 335, 339, 342, 430, 435; Economics 201-202, 203 and courses numbered above 300 except 362; geography courses numbered above 200 except 212, 322, 331, 335; history courses numbered above 300; Journalism 231, 232, 253, 361, 362, 479; Mining Engineering 454, 472; political science courses numbered above 200; psychology courses numbered above 200; social services and corrections courses numbered above 200; sociology courses numbered above 200; Speech and Theatre 315, 410, 412, 427, 428, 433.

Group III, Humanities: Anthropology 322, 339, 342; Art 314, 315, 316, 416, 417, 418; English 235, 236, 241, 281, 291, and courses numbered above 300 except 305, 306, 311, 321, 385, 405, 406 and 411; French courses numbered above 300 except 301, 305, 306, 309, 407, 408; German courses numbered above 300 except 301, 305, 306, 309, 407, 408; Italian courses numbered above 300 except 305, 306; Latin courses numbered above 300; Music 350, 407, 414, 422, 423, 424, 425, 426, 428; philosophy courses numbered 200 and above; Russian 357 and 358; Spanish courses numbered above 300 except 301, 305, 306, 309, 407, 408; Speech and Theatre 317, 321, 414, 415, 416, 423, 471, 472, 473.

Curriculum for First Two Years

In order that these requirements may be used to the best advantage in assuring a well-balanced course and at the same time give the student some freedom of choice in the selection of courses, the course of study as shown 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

(16 credits per semester)	*Credits*
Military science	0-1
English 101-102 (3 credits each)	6
Foreign language, natural science, social science, or humanities	5-8
Electives	3-7

Sophomore Year

(16 credits per semester)	*Credits*
Foreign language, natural science, social science, or humanities	5-8
Electives	6-10

General Regulations

No course with a number above 300 is open to freshmen or sophomores without the written recommendation of the chairman of the department.

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 grade-point average 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 Science or electives.

The college's policy on S/U courses conforms in every respect to the University policy, but with the restriction that courses taken for S/U credit may not

count toward the field of concentration (major and related subjects) except upon the recommendation of the student's adviser and department chairman, with the approval of the Dean.

Junior and Senior Requirements

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

1. Complete courses totaling not fewer than 40 credits in courses numbered above 300.
2. Complete the requirements listed under Prescribed Courses in Arts and Science.
3. Complete requirements for a field of concentration (major and minor), usually 50 credits, in a program representing a unity of aim. 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 his adviser and with the approval of his chairman, must submit to the office of the dean a written notice selecting a field of concentration; 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.

Candidates for graduation must submit an application for graduation to the Dean of the College of Arts and Science at the beginning of their senior year.

Graduate Study

The college offers courses at the graduate level in each of its departments except Criminal Justice and Military Science. 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 (Master of Arts for the Teaching of English degree also), foreign languages (French, German, Spanish), history, journalism, mathematics, music (Master of Music degree also), philosophy, physical education, physics, political science, psychology, sociology, and zoology.

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

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 environmental studies, library science, and humanities.

Departmental Offerings

Anthropology

Faculty: d'Azevedo, C. Fowler, D. Fowler, Hardesty (Chairman), K. Knudson, M. Knudson, Liljeblad (Adjunct), Rusco (Adjunct), Winzeler

Anthropology

Major Interest Subject	*Credits*
Anthropology 101, 102 (4 credits each), 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
	36

Related Subjects (15 credits): Psychology 101, Sociology 101 (3 credits each), and Sociology 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.

Requirements for the Master of Arts Degree in Anthropology

Applicants for admission to the program must satisfy all admission requirements of the Graduate School and, in addition, have a B average in their undergraduate major field. Knowledge of basic statistical concepts is expected. Preference for admission is given to those with an undergraduate major (or the equivalent) in anthropology. If a student's background is deemed inadequate by the department, additional preparation is required.

A limited number of fellowships, graduate assistantships, and some research funds are available to graduate students in anthropology. Information may be obtained from the department chairman. Applications for financial aid should be made di-

Courses Open to Freshmen Which Satisfy Requirements

The courses open to freshmen and other students which may be used to fulfill the foregoing requirements in natural sciences, social sciences, and humanities are listed below. Some courses have prerequisites. See course descriptions.

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Group II, Social Sciences: Anthropology 100, 101; Criminal Justice 110, 120; Geography 106, 109; History 101-102, 111, 201, 202, 217; Journalism 101, 102; Medical Science 205, 280 and 281; Political Science 103-104; Psychology 101, 102; Sociology 101, 102; Social Services and Corrections 101; Speech and Theatre 210.

Group III, Humanities: Art 115, 210, 212, 215, 216, 217, 218, 256, 257; English 131, 243, 247, 261, 271; History 105-106; Music 121, 201, 202; Philosophy 110, 111, 114; French, German and Spanish 221 and Spanish 222; Speech and Theatre 200, 217, 221, 229.

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Group II, Social Sciences: Anthropology courses numbered above 200 except 322, 335, 339, 342, 430, 435; Economics 201-202, 203 and courses numbered above 300 except 362; geography courses numbered above 200 except 212, 322, 331, 335; history courses numbered above 300; Journalism 231, 232, 253, 361, 362, 479; Mining Engineering 454, 472; political science courses numbered above 200; psychology courses numbered above 200; social services and corrections courses numbered above 200; sociology courses numbered above 200; Speech and Theatre 315, 410, 412, 427, 428, 433.

Group III, Humanities: Anthropology 322, 339, 342; Art 314, 315, 316, 416, 417, 418; English 235, 236, 241, 281, 291, and courses numbered above 300 except 305, 306, 311, 321, 385, 405, 406 and 411; French courses numbered above 300 except 301, 305, 306, 309, 407, 408; German courses numbered above 300 except 301, 305, 306, 309, 407, 408; Italian courses numbered above 300 except 305, 306; Latin courses numbered above 300; Music 350, 407, 414, 422, 423, 424, 425, 426, 428; philosophy courses numbered 200 and above; Russian 357 and 358; Spanish courses numbered above 300 except 301, 305, 306, 309, 407, 408; Speech and Theatre 317, 321, 414, 415, 416, 423, 471, 472, 473.

Curriculum for First Two Years

In order that these requirements may be used to the best advantage in assuring a well-balanced course and at the same time give the student some freedom of choice in the selection of courses, the course of study as shown 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

(16 credits per semester)	*Credits*
Military science	0-1
English 101-102 (3 credits each)	6
Foreign language, natural science, social science, or humanities	5-8
Electives	3-7

Sophomore Year

(16 credits per semester)	*Credits*
Foreign language, natural science, social science, or humanities	5-8
Electives	6-10

General Regulations

No course with a number above 300 is open to freshmen or sophomores without the written recommendation of the chairman of the department.

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 grade-point average 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 Science or electives.

The college's policy on S/U courses conforms in every respect to the University policy, but with the restriction that courses taken for S/U credit may not

count toward the field of concentration (major and related subjects) except upon the recommendation of the student's adviser and department chairman, with the approval of the Dean.

Junior and Senior Requirements

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

1. Complete courses totaling not fewer than 40 credits in courses numbered above 300.
2. Complete the requirements listed under Prescribed Courses in Arts and Science.
3. Complete requirements for a field of concentration (major and minor), usually 50 credits, in a program representing a unity of aim. 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 his adviser and with the approval of his chairman, must submit to the office of the dean a written notice selecting a field of concentration; 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.

Candidates for graduation must submit an application for graduation to the Dean of the College of Arts and Science at the beginning of their senior year.

Graduate Study

The college offers courses at the graduate level in each of its departments except Criminal Justice and Military Science. 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 (Master of Arts for the Teaching of English degree also), foreign languages (French, German, Spanish), history, journalism, mathematics, music (Master of Music degree also), philosophy, physical education, physics, political science, psychology, sociology, and zoology.

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

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 environmental studies, library science, and humanities.

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Anthropology

Faculty: d'Azevedo, C. Fowler, D. Fowler, Hardesty (Chairman), K. Knudson, M. Knudson, Liljeblad (Adjunct), Rusco (Adjunct), Winzeler

Anthropology

Major Interest Subject	*Credits*
Anthropology 101, 102 (4 credits each), 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
	36

Related Subjects (15 credits): Psychology 101, Sociology 101 (3 credits each), and Sociology 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.

Requirements for the Master of Arts Degree in Anthropology

Applicants for admission to the program must satisfy all admission requirements of the Graduate School and, in addition, have a B average in their undergraduate major field. Knowledge of basic statistical concepts is expected. Preference for admission is given to those with an undergraduate major (or the equivalent) in anthropology. If a student's background is deemed inadequate by the department, additional preparation is required.

A limited number of fellowships, graduate assistantships, and some research funds are available to graduate students in anthropology. Information may be obtained from the department chairman. Applications for financial aid should be made di-

rectly to the department; the deadline for such applications is March 1.

The candidate for the Master of Arts degree in anthropology must complete 30 hours of course work in anthropology carrying graduate credit (32 for Option B, including at least one *area* course (the peoples and cultures of a major geographic region). Of the 30 (32) required hours of graduate work, at least 18 must be in courses numbered 900 and above as follows:

Option A	*Credits*
Anth. 903 — Seminar in Cultural Anthropology	3
Anth. 904 — Seminar in Physical Anthropology	3
Anth. 905 — Seminar in Archeology	3
Anth. 950 — Anthropological Theory	3
Anth. 997 — Thesis	6
	18

Option B	*Credits*
Anth. 903 — Seminar in Cultural Anthropology	3
Anth. 904 — Seminar in Physical Anthropology	3
Anth. 905 — Seminar in Archeology	3
Anth. 950 — Anthropological Theory	3
Anth. 996 — Professional Paper	3
Additional credits over 900	3
	18

Candidates are expected to meet all the University and department requirements for the Master of Arts degree, including a minimum B average in all graduate work in anthropology, a written comprehensive examination, and completion of the above required courses. Passing of the comprehensive examinaton is the major requirement for the M.A. degree.

The candidate who plans to go on to a Ph.D. program is urged to demonstrate a reading knowledge of at least one foreign language by passing the Standardized Educational Testing Service examination.

Art

Faculty: Griffin, Howard, Loevgren, Martinez, McCormick, Morrison, Rosenberg (Chairman), Unterseher

Major Interest Subject	*Credits*
Art 121, 221	6
Art 135-235 or 163-263 or 175-275 or 185-285	6
Art 216, 217 and 210 or 212	6
Art 403	2
Art courses numbered 300 or above, chosen with the approval of the adviser and dean	14
	34

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 part of their program.

Related Subjects (20 credits): At least 12 credits in one approved academic area (excluding art, 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.

The following courses offered through the Department of Art satisfy the College of Arts and Science humanities requirement: Art 140, 210, 212, 216, 217, 256, 257, 314, 357, 417, 418, and 419.

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 Education 103, 210; Counseling and Guidance 330, 400; Secondary Education 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

Faculty: Heisler (Chairman), Lewis, Morris, Pardini, Payne, Welch

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

Faculty: Comanor, Cooney, Dreiling, Gubanich, Kleiner, Knoll, La Rivers, Mead, Mozingo (Chairman), Prusso, Risser, Ryser, Tibbitts, Vig

Biology

Certain departmental core courses are required for all students in the department, whatever their particular specialization. These are listed below. The Biology Department does not require a fixed curriculum. The student and faculty adviser develop a curriculum which is tailored to his individual needs. This should be done whether the student is majoring in biology or any of the other specialized areas offered. All curricula in the Biology Department are designed to prepare the student for professional work or continuing education at the graduate level.

Core Courses	*Credits*
Biology 101	4
Biology 201	3
Biology 202	3
Genetics or evolution	3
Cell biology or physiology	4
Ecology	3
	20
Additional credits in biology, botany, or zoology	18
	38*

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

Recommended Electives: Mathematics and physics.

Botany

A student wishing to specialize in botany follows the curriculum listed under Biology. 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 Biology. 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 Biology. Depending upon the student's particular orientation in ecology he should elect relevant courses available elsewhere in the University.

Required Related Subjects: General physics, statistics.

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

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

Cellular Biology

A student electing to specialize in cellular biology follows the curriculum listed under Biology, taking work in microscopic anatomy and additional physiology courses.

Required Related Subjects: Statistics, physics, physical chemistry, mathematics through calculus.

Recommended Electives: Radiotracer techniques, electronics, analytical chemistry.

Preprofessional

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

Preprofessional students enrolling in the Biology Department 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 his 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 from the University of Nevada after meeting the above 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.

While the Biology Department does not have a paramedical program as such, students interested in the field of medical technology have two options at this University: they may enroll as regular majors in the department and complete their laboratory year at an out-of-state medical school, or, they may enroll as medical technology majors in the School of Medical Sciences. In addition to the core curriculum, students pursuing the first option in this department should take the following courses: genetics, bacteriology, comparative anatomy, parasitology, or a course in systematic zoology, animal physiology, histology, and histological techniques.

Required Related Subjects: Mathematics (two courses), general physics with lab (one year), organic chemistry (one year), analytical chemistry.

Master of Science Degrees

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 of Nevada.

Minimum Credit Requirements:

Course credits	48
Credits for research and dissertation	24
	72

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

Programs of study leading to the Ph.D. degree 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

Faculty: Bacon, Baglin, Burkhart, Fickes, Guss, Harrington (Chairman), Kemp, Lemay, Nelson, O'Brien, Rose, Shin

The Bachelor of Science in Chemistry degree 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*
Chemistry 103, 104 recommended (or 101-102 or 171-172 and 102 acceptable)	8
Chemistry 243, 244, 245, 246	10
Chemistry 330, 334	7
Chemistry 353, 354, 355	8
Chemistry 387	1
Chemistry 497-498, or a 300-level or higher 3-credit course in chemistry, physics, or mathematics	3-4
Chemistry 415, 456 and two 3-credit courses, 400-level or higher, in two of the three fields —analytical, organic, and physical	11
	48-49

Related Subjects (39 credits): Mathematics 181, 182, 221, 281, (14 credits); Physics 201, 202, 204, 205 recommended (151, 152, 153, 154 acceptable) (8 credits); German 103, 104, 205, 207, 209 (12 credits).

Recommended elective: Mathematics 262.

Field of Concentration in Chemistry

Major Interest Subject	*Credits*
Chemistry 103, 104 recommended (or 101, 102 or 171-172 and 102 acceptable)	8
Chemistry 243, 244, 245, 246	10
Chemistry 330, 334	7
Chemistry 353-354	6
Chemistry 387	1
	32

Related Subjects (17 credits): Mathematics 181, 182 (8 credits); Physics 201, 202, 204, 205 recommended (151, 152, 153, 154 acceptable) (8 credits).

Recommended Electives: Chemistry 355, 356; Mathematics 221, 281.

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.

Master of Science in Chemistry

Candidates for the Master of Science 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 German is required. Options in the Department of Chemistry include organic, inorganic and physical chemistry and biochemistry (students also may register for Master of Science degree in biochemistry in the Division of Biochemistry in the College of Agriculture).

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	4
Electives	11
	48

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

Faculty: Barnhill, Braunstein (Chairman), Fahrenkopf, Swinney

The Department of Criminal Justice offers courses of study leading to a baccalaureate degree. An associate degree is no longer offered.

Bachelor of Arts in Criminal Justice

Major Interest Subject	*Credits*
Criminal Justice 110, 112, 120, 130, 220, 224, 226, 320, 410, 420, 421	29
Related Subjects	
Psychology 101, 231, 441	8
Sociology 101	3
Speech and Theatre 113	3
Library Science 135	1
	44

English Language and Literature

Faculty: Brown, Cole, Connor, Diamond, Essa, Gabbard, Haddawy, Harvey (Chairman), Herman, Hettich, Howard, Hume, Jacobsen, Merrill, Morrison, 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

Major Interest Subject	*Credits*
English 282, 291, 292	9
Additional courses to be selected from English 305-306, 405-406 (a total of no more than 4 credits) and other courses numbered above 400. At least 6 credits must come from English 425, 451, 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

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

Related Subjects (18 credits): Any of the following not used to satisfy Arts and Science requirements or requirements listed above — English 311, 316, 385, 415; Anthropology 305, 311 (if not taken as English 311), 316 (if not taken as English 316), 388, 415 (if not taken as English 415), 420; Basque 150-151; French 455, 458; German 455, 458; Spanish 455, 458; Philosophy 406; Speech and Theatre 433; Speech Pathology and Audiology 310, 357, 467.

Secondary Teaching

Major Interest Subject	*Credits*
English 281 or 282, 291, 292, 321, 385	15
Additional courses to be selected from courses numbered above 400. At least 6 credits must come from English 425, 451, 460, 461, 463, 464, 465, 469, 470, 471	17
	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.

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

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, contact 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 degree is designed primarily to train teachers for junior college teaching and lower-division teaching in colleges and universities. The MATE degree encourages relatively broad preparation in language and literature, with special attention to composition, literary appreciation, applied linguistics, and other subjects needed by teachers in basic English courses. No foreign language proficiency is required for this degree.

Master of Arts Degree

The Master of Arts degree is intended primarily for students who plan to continue work toward the Doctor of Philosophy degree. The program includes extensive reading in English and American literature and language, as well as practice with essential 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 are admitted to the doctoral program upon evidence of an overall grade-point average of 3.0 or higher in all undergraduate and graduate work and a satisfactory score on the Graduate Record Examination aptitude and advanced tests.

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, the single language option at the discretion of the student's advisory and examining committee.

Prelegal

For information, contact the Chairman of the Department of English.

Foreign Languages and Literatures

Faculty: Bertalot, Carney, Fricke, Grotegut (Chairman), Hagner, Leneaux, Lide, Macura, Manca, Petersen, Rojas, Romo, Wells, Wilcox

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; the knowledge and understanding of the literature, thought, and culture.

The Department of Foreign Languages 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 Basque, Italian, Latin, 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. A Spanish major is strongly advised to take additional courses in Portuguese.

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 who attended the University for the first time in the fall of 1970 or later, may meet the requirement by completing course 204 or 209 in any language. The student has a choice of a total skills sequence (listening comprehension, speaking, reading, writing) or a sequence in which the student reads materials in his own major.

Students who were admitted before fall 1970 should consult with their advisers or refer to the catalog of the year of admission.

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 French 221, 301, 305-306, 309 (2 credits), and 455 or approved equivalents. German majors must take German 221, 301, 305-306, 309 (2 credits), 311, and 455 or approved equivalents. Spanish majors must take Spanish 221, 222, 301, 305-306, 309 (2 credits), 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 where records and tapes of different languages are used to improve the student's 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 French 221, 305-306, 309 (2 credits), and 311. German majors must take German 221, 305-306, 309 (2 credits), and 311. Spanish majors must take Spanish 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 (esthetics). 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.
6. *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.
7. *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.

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 grade-point average, 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 900 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 900 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.

History

Faculty: Brodhead, Coray, Edwards, Elliott, Ferguson, Folkes, Hartigan, Hulse, Marschall, Metzgar, Rowley, Shepperson (Chairman), Tigner

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

History

Major Interest Subject	*Credits*
History 101-102	(required)
History 105-106 (3 credits each)	6
24 additional credits in history courses numbered 200 and above to be selected in consultation with adviser. A totalof 30 credits exclusive of History 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 grade-point average 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 grade-point average 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.

Prelegal

For information, contact the Chairman of the Department of History.

Journalism

Faculty: Conover (Chairman), Frohnen, Garberson, Gilleland, Metz

The Program in Journalism

Journalism today is a profession. It requires practitioners to be culturally educated and professionally trained. Blending the arts and sciences with professional courses, University journalism students take approximately three-fourths of their courses outside the professional curriculum.

A core program, required of all journalism majors, and four sequences are offered. In addition, cooperative programs are offered in conjunction with other colleges, schools, and departments to prepare young people for careers in areas of specialized journalism. Demand is great for young people trained both in technical fields and in journalism to serve as writers and editors of publications and news and feature services in these fields. The Department of Journalism is prepared to work out

special study programs involving journalism and engineering, social service, business, chemical technology, education, mining, political science, international relations, and similar fields.

Through a suitable combination of courses, students may organize their studies in preparation for magazine article writing or for publications editing and management.

Journalism majors in all sequences must complete requirements for the Bachelor of Arts degree in the College of Arts and Science.

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

The Core Program

All journalism majors are required to complete the core program. The core program is designed to introduce the student to the various aspects of professional journalism and to provide training that is applicable to all the sequences.

	Credits
Jour. 101—Interpreting the Day's News	3
Jour. 221—News Gathering and Writing	3
Jour. 222—News Gathering and Writing	3
Jour. 253—Evolution of Journalism as a Social Institution	3
Jour. 280—Introduction to News Broadcasting	2
Jour. 351—News Editing	2
Jour. 356—Principles of Advertising	2
Jour. 375—Photojournalism	2
Jour. 372—Law of the Press	3
	23

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

The Sequential Programs

I – Newspaper and Other Print Media

	Credits
Jour. 373—Typography and Layout	2
Jour. 454—Advanced Reporting	3
Jour. 479—Journalism and Society	3
Jour. 481—Journalism Internship	3
	11

In addition, for the student planning a career in newspaper or other print media, courses in areas to reinforce his program and particular interest of specialization, as recommended by the student's adviser, are required.

II – Radio and Television

	Credits
Jour. 311—Radio and Television News Writing and Editing	3
Jour. 312—Radio and Television News Writing and Editing	3
Jour. 454—Advanced Reporting	3
Jour. 481—Journalism Internship	3
	12

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

III – Public Relations

	Credits
Jour. 301—Public Relations Principles and Practice	2
Jour. 302—Public Relations Problems	2
Jour. 373—Typography and Layout	2
Jour. 454—Advanced Reporting	3
Jour. 481—Journalism Internship	3
	12

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

IV – Advertising

	Credits
Jour. 357—Laboratory of Advertising	3
Jour. 373—Typography and Layout	2
Jour. 454—Advanced Reporting	3
Jour. 481—Journalism Internship	3
	11

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

The Minor in Journalism

Students who plan to major in another field, but desire a minor in journalism should complete the core program. They may add electives to reinforce their special areas of interest in journalism.

Journalism Teaching

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

Agricultural Journalism

See the College of Agriculture section.

Master of Arts in Journalism Requirements

Thirty semester 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.

Prelegal

For information, contact the Chairman of the Department of Journalism.

Library Science

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

Mathematics

Faculty: Beesley (Chairman), Collison, Constantino, Davis, Falk, Hooper, Kimble, Macauley, McMinn, Pfaff, Pinkerton, Tompson, Wagner, Wishart

Mathematics

Major Interest Subject	*Credits*
Mathematics 181, 182, 220, 221, 262, 281, 311, 331, 341	28
Courses selected from the following: mathematics courses numbered above 300	2-8
	30-36

Students who are preparing for secondary school teaching may substitute two of the three courses: Mathematics 373, 374, 375 for Mathematics 221 and 311.

Related Subjects (14-20 credits): Courses to be selected in consultation with the adviser and departmental chairman and with approval of the dean. It is expected that the courses selected be upper-division courses which are not counted toward fulfillment of other graduation requirements in the College of Arts and Science, although lower-division courses in a second foreign language or in physics are acceptable and other exceptions may be made with the consent of the department chairman and the dean. A substantial program in physics, education, or other related field is acceptable in fulfillment of this part of the requirement.

Computing Science Option

Major Interest Subject	*Credits*
Mathematics 181, 182, 185, 220, 262, 281, 283, 385, 386	28
Courses selected from Mathematics 307, 308, 321, 322, 331, 353, 354, 383, 421, 453, 469, 489	6-8
	34-36

Related Subjects (14-17 credits): Courses in computing applications or computer science foundations from other departments. (For example, Economics 362, Electrical Engineering 431 (a) (b), Physics 355, Information Systems 251). The related subjects and the major interest electives collectively should cover a recognized subarea of computing science.

Master of Science Degree in Mathematics

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

Faculty: Boggess, Butler, Cook, Copas, Johnson, Lemberes, Marohn, Muise, Rampanelli, Risley, Salvadorini

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 of Nevada, Reno. 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.

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 does not provide academic credit but it 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 (Military 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 (Military 201-202) : Provision of a sound foundation in the principles of the art of warfare as exemplified in U.S. 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 (Military 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-weeks, advanced summer camp (usually between the student's junior and senior years) immediately after spring semester.

Seniors or selected graduate students (Military 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 ROTC 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 his twenty-eighth birthday.
3. Have successfully completed such survey and screening tests as may be prescribed.
4. Have successfully passed a prescribed physical examination.

5. Be selected by the Professor of Military Science and his college dean.
6. Have executed a written contract with the United States government.

Cadet Brigade

The cadet brigade 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 brigade. 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 brigade 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 situatons 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.

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.

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.

Flight Instruction — A special course for selected senior students which results in a private pilot's license. The course includes instruction in basic ground and in-flight fundamentals of presolo, solo and cross-country flying in fixed wing single-engine aircraft. The purpose of the special course is to determine aptitude for flying, stimulate the student's interest in Army aviation and to provide him with preparatory training prior to acceptance into the Army's flight instruction program when commissioned.

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 year. 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.

Deferment under the Selective Service Program

Any student in the basic ROTC program (Military 101 through 202) qualifies and may apply for a military training (1D) deferment. ROTC cadets in the advanced program are automatically awarded the 1D deferment upon acceptance into Military 301. The 1D deferment enables the ROTC student to complete undergraduate and, if desired, graduate studies before entering military service.

Active Duty and Reserve Obligations

Students commissioned from the ROTC program normally must serve on active duty in the Army as a reserve officer for a period of two years upon graduation from the University. After completion of this active duty they are assigned to re-

serve units for an additional four years if a vacancy exists in a unit within a reasonable distance from their home.

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 chool, not to exceed a total of twenty months. Students are paid one-half 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.

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 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

Faculty: Booth, Carrico, Goddard, Isaeff, Lenz, Macy, Puffer (Chairman), Rowland, Smith, Williams

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. The Bachelor of Arts degree with a field of concentration in music may be earned in the College of Arts and Science.

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 (vocal and instrumental). Information concerning these programs may be obtained from the department chairman.

Music History and Literature

Major Interest Subject	*Credits*
Music 151, 251, 351, 451	8
Music 201, 202, 207, 208, 301, 302	22
To be chosen from Music 350, 406, 407, 414, 422, 423, and 424	9
	39

Related Subjects (11 credits): To be selected from Art 115, 315, 316, 416; English courses numbered above 102; foreign languages above Arts and Science requirements; History 105-106, 371, 372, 403-404; Philosophy 110, 211, 213; Physical Education 269, 283, 480; Speech and Theatre 471, 472, 473.

Applied Music

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

Major Interest Subject	*Credits*
Applied music major	12
Piano or applied music minor	4
Music 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

Major Interest Subject	*Credits*
Applied music (1 credit each semester)	8
Music 201, 202, 207, 208	16
Selected from Music 406, 407, 414, 421, 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

Faculty: Halberstadt, Kelly (Chairman), Lucash, Petock, Roelofs

Philosophy as a field of concentration is designed for those students interested in acquiring a comprehensive understanding of the various areas of philosophy, either for their cultural enrichment or as a basis for advanced study and teaching of philosophy. It is an appropriate field of concentration for those planning to enter such fields as law or theology. The department also offers sequences of courses which may constitute secondary fields of concentration for students in most academic areas.

Major Interest Subject	*Credits*
Philosophy 211, 213 (required)	6
At least 6 credits in each of the following three groups:	
Group A — History and systematic philosophy: Philosophy 113, 203, 212, 314, 315, 403, 404, 405	6
Group B — Logic and method: Philosophy 114, 324, 326, 406	6
Group C — Value Studies: Philosophy 111, 201, 202, 321, 322, 323, 325, 401, 402	6
Additional credits in philosophy	6
	30

Related Subjects (20 credits): All students concentrating in philosophy, excepting prelegal students, select courses totaling at least 20 credits from the offerings of other departments. 20 credits are selected from offerings within any one of the three Groups of Prescribed Courses: Natural Sciences, Social Sciences, and Humanities. Generally, the credits are selected from courses in not more than three departments in any one of the three groups. These courses are selected with the approval of the student's adviser and the chairman of the department.

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

Prelegal students with a concentration in philosophy select courses totaling 40 credits from the list of recommended courses in the prelegal curriculum.

Master of Arts Degree in Philosophy

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:

(a) Currently hold a B.A. degree in philosophy from an accredited institution of higher learning, or

(b) 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 900-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.

Prelegal

For information, contact the Chairman of the Department of Philosophy.

Physical Education

Faculty: Avansino, Bailey, Broten, Cook, Eatinger, Legarza, Laughter (Chairman), Lilly, Loper, Magney, Mowrer, Newell, Padgett, Reed, Scattini, Spencer, Trachok, Twardokens

Curricula in this area are designed to enable the student to meet the requirements for a field of concentration in physical education in the College of

Arts and Science. Students are required to complete a field experience approved by the department which requires the development of teacher-leadership skills. This experience must be completed before the beginning of the junior year.

Students may qualify for teacher certification by meeting the requirements in Professional Foundations for Teaching as stated for the respective levels in the College of Education.

Major Interest Subject	*Credits*
Required: Physical Education 201, 372, 390, 452, and 370 or 295	12
Physical Education 100-199, 260-279 (Choose 10) (No more than four in Physical Education 100-199)	10
Physical Education 202, 206, 221, 222, 240, 283, 290, 291, 292, 310, 312, 321, 322, 326, 329, 341, 354 (Select 6 credits)	6
Physical Education 325, 327, 328, 376, 377, 381, 411, 414, 430, 440, 447, 453, 472, 480, 483, 490, 494, 495, 496 (Select 6 credits)	6
	34

Related Subjects (15-16 credits): Chemistry 100, 101, or 171 (3 or 4 credits); Medical Science 205 (2 credits); Biology 101 (4 credits); Zoology 223 and 225, 224 and 226 (6 credits).

Physical Education with Emphasis in Dance

Major Interest Subject	*Credits*
Physical Education 100-199, 260-278	6
Physical Education 201, 202, 206, 269, 283 (Select any 4 courses)	8
Physical Education 354, 370, 372, 376, 377, 390 (Select 10 credits)	10
Physical Education 452, 480	5
	29

Related Subjects (21 credits): Biology 101 (4 credits); Chemistry 100, 101, or 171 (3-4 credits); and 13-14 credits, outside of 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.

Master of Arts Degree in Physical Education

The Department of Physical Education and Athletics 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.

Physics

Faculty: Altick, Barnes, Bettler, Cathey, Frazier, Hallett, Hoffer, Kliwer (Chairman), Marsh, Moore, Scott, Shepherd, Sill, Smiley, Squires, Telford, Wagner

The Physics Department offers courses of study 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.

Major Interest Subject	*Credits*
Physics 201, 202, 203, 204, 205, 206	12
Physics 351, 352	6
Physics 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): Chemistry 103, 104 (8 credits); Mathematics 181, 182, 221, 281 (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.

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 901, 902, 911, 921-922, 951-952 and 912 when feasible. The atmospheric physics option courses should include 901, 940, 941, 942, 943, 949, and 951-952. 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 his 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 is 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 Philosophy 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 equivalent must be satisfactorily completed for the doctor's degree in physics:

	Credits
Phys. 901—Mathematical Physics	3
Phys. 902—Classical Mechanics	3
Phys. 911-912—Electromagnetic Theory I and II	6
Phys. 921-922—Quantum Theory I and II	6
Phys. 932—Statistical Mechanics	3
Phys. 961—Theoretical Spectroscopy	3
At least 3 hours of Physics 951-952	3
Hours selected from other 900-level physics and/or mathematics courses	12
Hours of approved electives	9
	48

For persons with a specialization in atmospheric physics, Physics 945 and 948 may be substituted for Physics 932 and 961.

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

Faculty: Bushnell, Chase, Crowley, Driggs (Chairman), Ganzel, Roberts, Rusco, Shields, Siegel, Weinberg, Wilcox

Political Science

Major Interest Subject (30 credits)

Political Science 103-104, and at least one additional course in each of the following four fields:

(1) American government (including public administration)
(2) Political theory
(3) Comparative government
(4) International relations

18 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 Political Science 104 or approval of the instructor.

U.S. and Nevada Constitutions

The state law of Nevada provides that no student may receive a diploma of graduation or a teacher's certificate without previously having passed a satisfactory examination upon the Constitution of the United States and the Constitution of Nevada. The following courses may be used to satisfy the requirement in United States Constitution: Political Science 409; History 101, 401. The following courses may be used to satisfy the requirement in Nevada Constitution: Political Science 208, 408; History 102, 217.

Political Science 103 or History 111 may be used to satisfy *both* constitutional requirements.

Master of Arts Degree in Political Science

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.

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

The political science faculty believes that those 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. The faculty therefore encourages students with these interests to take several courses in social science research methods, statistics, and computer science.

Foreign Affairs

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

Prelegal

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

Prelegal Curricula in the University

Law schools in the United States customarily require three or four years of acceptable undergraduate preparation for admission. Most law schools admit applicants regardless of the undergraduate field of concentration and seldom prescribe specific courses. Instead, a program is recommended which serves to develop certain intellectual tools and strengthen personal qualities needed in the study and practice of law.

As a rule, law school statements of aims for prelegal students emphasize clear and forceful self-expression in correct and concise English:

rapid reading of discursive materials and the most complete and precisionistic comprehension of concentrated materials; clear, careful, and independent thought, coupled with the fullest appreciation of the functions and limitation of traditional logical tools. This includes training in research and in the methodology of the field in which the student elects to work. Undergraduate training for the prelegal student should develop capabilities for insight rather than the mere gathering of information. Such goals must include the broadest spectrum of studies in the natural and social sciences as well as the humanities. Three courses in science or mathematics are required in every program in the College of Arts and Science and the student is encouraged to elect more.

While breadth is thus of great importance in prelegal training, depth structure, and direction of the program are equally important. Law schools often criticize the occasional haphazard selection or accumulation of a multitude of courses without any apparent pattern. "Substantive" courses are preferred over the "practical and professional." To give such structure and direction, and at the same time to permit substantial freedom of choice, the University has organized twelve fields of concentration *curricula* within any one of which prelegal preparation may be pursued: Business administration, economics, English, history, journalism, philosophy, political science, psychology, social psychology, sociology, and speech and theatre. The major interest subject requirements in these departments vary from 30 to 36 credits, to which must be added selections from a list of recommended related courses to a total of 70 credits. Information concerning these fields of concentration and lists of related courses most frequently and strongly recommended by law schools may be obtained from the office of the Dean of the College of Arts and Science and from the chairmen of the departments in which the various fields of concentration are offered.

Psychology

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

Psychology

The general psychology major includes training in all the major areas of psychology; social psychology is a broader major that also includes areas in sociology and anthropology.

General Psychology

Major Interest Subject	*Credits*
Psychology 101, 210, 301	11
Additional credits in psychology	21
	32

Related Subjects (18 credits): 18 additional credits to be chosen from a related field in consultation with the adviser and with the approval of the dean of the college. The department accepts related areas in anthropology, biochemistry, biology, chemistry, history and social theory, mathematics, philosophy, social services and corrections, and sociology. Other related areas are accepted subject to the approval of the adviser, the department chairman, and the dean of the college.

Social Psychology

Major Interest Subject	*Credits*
Anthropology 101	3
Psychology 101 (3 credits), 210 (4 credits), 261, 362, 392, 463 (3 credits each)	19
Sociology 101	3
Additional credits in psychology	9
	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 Psychology Department offers courses of study leading to the degrees of Master of Arts and Doctor of Philosophy. These programs are described below.

General Requirements for Admission

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 grade-point average 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.

Master of Arts Program

A Master of Arts degree is offered in psychology. The 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 of Nevada. 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 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 of Nevada. 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.

Prelegal

For information, contact the Chairman of the Department of Psychology.

Social Services and Corrections

Faculty: Angell, Larsen (Acting Chairman), Mandelbaum, Moser, Stotler
Adjunct Faculty: Abbott, Howard

The Department of Social Services and Corrections offers courses of study leading to the degree of Bachelor of Arts. In recent years extensive new prevention and treatment programs 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 is a two-year program leading to a master's degree.

The Department of Social Services and Corrections 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 approved 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 28 credits in required courses plus 8 credits selected from other courses in the department, is required of all majors in social services and corrections. For the additional 14 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 areas of his 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	4
S.Sv.C. 481—Field Experience in Social Service	4
	28
Plus 8 credits selected from the following in consultation with adviser	8
	36
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 (14 credits): The additional 14 credits should be chosen from the following courses: Anthropology 100, 102; Economics 201, 202; Education 103, 440; History 403-404; Home Economics 121, 201, 430, 431; Medical Sciences 280, 281; Nursing 102, 104; Philosophy 103, 105; Physical Education 240, 440; Political Science 341, 342, 406, 441; Psychology 101, 102, 231, 233, 261, 362, 441; Sociology 342, 347, 364, 366, 367, 379; Zoology 103.

Sociology

Faculty: Backman, Harvey, Kreplin, Richardson (Chairman), Stafford, Warner

Sociology

Major Interest Subject	*Credits*
Sociology 101 (3 credits), 210 (4 credits), 342 or 371, 376 or 384, 392, 491, 492 (3 credits each)	22
Additional courses in sociology	9
	31

Related Subjects (19 credits): Anthropology 101 (3 credits) and one additional anthropology course. Plus any one of the following sequences: I—Psychology 101, 261, 362, or 463 (3 credits each). II—Economics 201, 202, 301 (3 credits each). III—Political Science 103, 104, 405 or 423 or 425 (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

Major Interest Subject	*Credits*
Sociology 101 (3 credits), 210 (4 credits), 261, 362, 392, 463 (3 credits each)	19
Psychology 101	3
Anthropology 101	3
Additional credits in sociology	9
	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 of the University of Nevada offers a graduate program leading to the degree of Master of Arts 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 at the University of Nevada is designed to prepare sociologists for careers in the academic world and in private or governmental research. It is also an appropriate type of training for students who expect to

apply social science to administrative and operating positions in government and private organizations. It is designed to equip students with a fundamental understanding of (a) sociological theory and (b) quantitative and qualitative methods of sociological analysis. It likewise aims to develop their ability to apply sociological knowledge to the conduct of research projects.

Emphasis in the graduate programs is placed upon scholarship and research competence.

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 grade-point average 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 which degree program he is interested in, and whether or not he wishes to be considered for financial assistance. 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.

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. 791 — History of Social Thought, 3 credits; 792 — Contemporary Sociological Theory, 3 credits; Soc. 906-907 — Intermediate Statistics, 6 credits; Soc. 918, 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 under the supervision of three faculty members, a thesis which is approved after the oral examination by the regular faculty.

An alternate method of earning an M.A. degree is the nonthesis approach. This method includes items (1) through (3) with the total being 32 semester credits.

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.

Prelegal

For information, contact the Chairman of the Department of Sociology.

Speech and Theatre

Faculty: Bernardi, Dillard, Dodds, Owen (Chairman), Page, Whited, Zimmerman

The Speech and Theatre Department offers the student a choice from several fields of emphasis in the communication arts and sciences: (1) speech communication; (2) theatre arts and interpretation; and (3) radio and television. Career preparation is available in each of these areas. Also, a student from any academic area may select courses for self-improvement or to fulfill requirements of other departments.

Speech Communication

Major Interest Subject	*Credits*
Required: Speech and Theatre 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.

Possible Sequential Programs

Within the 24-credit requirement the student is free to design with a faculty adviser a program of study. The following are three general categories of course work in Speech Communication. A student may specialize in one area or may overlap course work between the areas to suit his personal and professional goals.

I. Public Address

	Credits
Sp.Th. 217—Argumentation and Debate	3
Sp.Th. 229—Persuasion	3
Sp.Th. 230—Symposium	3
Sp.Th. 317—Contemporary Public Argumentation	3
Sp.Th. 319—Legal Argumentation	3
Sp.Th. 329—Business and Professional Speaking	3
Sp.Th. 415—American Public Address	3
Sp.Th. 416—British Public Address	3
Sp.Th. 427—The Rhetoric of Protest and Dissent	3
Sp.Th. 490—Special Problems in Speech Communication	3

II. Interpersonal and Organizational Communication

	Credits
Sp.Th. 315—Small Group Communication	3
Sp.Th. 412—Interpersonal Communication	3
Sp.Th. 428—Organizational Communication	3
Sp.Th. 434—Communication: Conflict and Negotiation	3
Sp.Th. 480— Communication Training Systems: Management	3
Sp.Th. 481—Communication Training Systems: Sales	3
Sp.Th. 479—Evaluation of Speech Communication Behavior	3
Sp.Th. 490—Special Problems in Speech Communication	3

III. Rhetorical and Communication Theory

	Credits
Sp.Th. 410—Nonverbal Communication	3
Sp.Th. 411—Intercultural Communication	3
Sp.Th. 414—Classical Rhetorical Theory	3
Sp.Th. 423—Modern Rhetorical Theory	3
Sp.Th. 433—Comparative Theories of Human Communication	3
Sp.Th. 490—Special Problems in Speech Communication	3

Prelegal

For information, contact the Chairman of the Speech and Theatre Department.

Theatre and Interpretation

Major Interest Subject	*Credits*
Required: Speech and Theatre 200*, 219, 220 and 221	12
To be selected from Speech and Theatre 103, 203, 303, 403	9
To be selected from Speech and Theatre 150, 151, 250, 251, 450, 451, 452, 453	6
To be selected from Speech and Theatre 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.

*Speech 200 should be taken prior to or concurrently with all other theatre courses.

Radio and Television

Major Interest Subject	*Credits*
Speech and Theatre 113, 240; Speech Pathology and Audiology 259 (all required)	7
To be selected from Speech and Theatre 242, 270, 341, 342, 343, 371, 440, 475, 476, 477, 478	12
To be selected from Speech and Theatre 200, 219, 220, 425, 426, 429, 430, 431, 432	8
To be selected from Speech and Theatre 210, 221, 229, 327, 428	6
	33

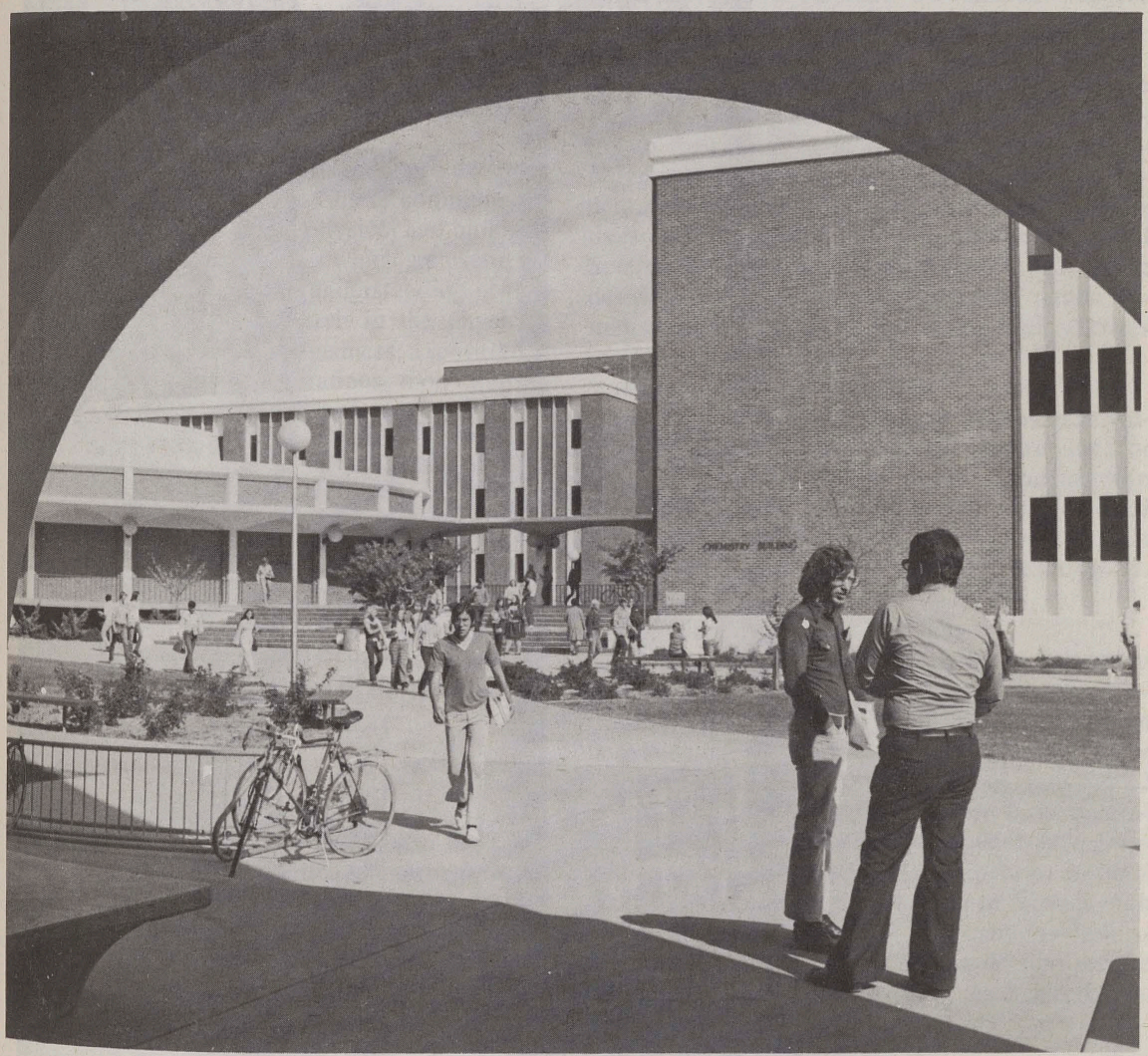
Related Subjects (17 credits): A student may develop a minor field of concentration under advisement with 17 credits acceptable to this department, subject to the approval of the department chairman and the dean.

Speech Pathology and Audiology

Major Interest Subject	*Credits*
Required: Speech and Theatre 113, 221; Speech Pathology and Audiology 259, 310, 357, 359, 360, 362, 461	25
Required: Speech Pathology and Audiology 363	2
Electives	3
	30

Course requirements are based on prerequisites for clinical certification in speech correction by the American Speech and Hearing Association. Substitutions may be made only with approval of the department and the dean.

Related Subjects (20 credits): Must include a course in child psychology or child development and a course in mental hygiene or the psychology of adjustment. Students should select as many courses in psychology as possible and a minor (16 credits) is strongly recommended. Selected courses in sociology and education are also acceptable. Students who plan a career in public school speech therapy are advised to take as many courses required for teacher certification as possible.



Chemistry-Physics-Lecture Complex

Ross Business Administration

College of Business Administration

ROBERT C. WEEMS, JR., *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.

Specific objectives of the college are to develop oral, written, and numerical skills of communications; basic knowledge of the physical and biological sciences and of mathematics which are useful in business problem solving; an understanding of the methods and results of research in the physical sciences, social sciences, and business; a sensitivity and knowledge of human aspirations, motivations, and human actions in the business world and the value systems on which they are based; a knowledge of the principles, policies, and practices of the functional areas of business — production, marketing, and finance — and their interrelationships; the facility of applying principles, policies, and practices within a functional area, or in economics, accounting, and office administration.

The Bureau of Business and Economic Research is the official research operation of the college and its scope of operation is statewide.

Programs

In fulfillment of the above objectives, the College of Business Administration offers the following programs:

1. Baccalaureate Degrees. (a) Bachelor of Science in Business Administration (with majors, areas, and options as follows: accounting; accounting and data systems, data systems; economics; managerial sciences; commercial banking, financial management, investments, insurance management, real estate, general management, institutional management, personnel and industrial relations, public administration, general marketing, advertising, consumer behavior, marketing research, quantitative marketing, retail and distribution, international marketing; office administration); (b) Bachelor of Arts in economics.

2. 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.

3. Supplementary Programs. Several supplementary programs are maintained which may be taken along with standard baccalaureate degree programs. These programs are:

(a) Public Administration

Students who desire to enter government service should enroll in the major most nearly corresponding to their anticipated field of government employment. The public administration minded student, whatever his major, should utilize his electives to complete the following courses: Political Science 341, 442, and Economics 451. For those desiring a more formal program, the public administration area under the managerial sciences major is recommended.

(b) Law School Preparation

Graduation from the College of Business Administration satisfies the academic requirements for admission to most schools of law. Students who plan to enter law school following completion of their bachelor's degree should, in addition to their regular advisers, confer with Dr. Kathryn H. Duffy.

(c) Secondary School Teaching

Holders of the degree of Bachelor of Science in Business Administration are accepted for state certification, provided they include diversified work in bookkeeping, economics, business law, and other subjects usually taught in high school, plus the 22 credits in professional education. It is recommended, but not required, that a student show preparation, whether by credit or examination, in shorthand and typewriting. The number of Nevada high school teaching positions in the business administration field is limited. For further details, see the section of this catalog regarding teacher certification.

Baccalaureate Degree Requirements

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; see "Bachelor of Arts.")

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 residency must be satisfied.

A total of 128 credits is required for graduation including *satisfactory completion of the military science requirement.*

3. Of the total 128 credits presented for graduation, each student must successfully complete:

a) a minimum of 120 academic credits (physical education and military courses below 300 are excluded).

b) a minimum of 40 credits in courses numbered 300 and above.

c) a minimum of 51 credits in nonbusiness subjects which include the following:

	Credits
Engl. 102—Composition and Literature* (or equivalent)	3
Humanities Philosophy — minimum of 1 course and sufficient additional courses in humanities to bring the total to 9.	9
Natural science and mathematics At least one course in Mathematics 160 or 181 and sufficient additional courses in mathematics and natural science to bring the total to 9.	9
Social science (other than economics) May include satisfaction of University requirements for study of the United States and Nevada constitutions.†	15
Other nonbusiness courses	15
	51

*University requirement (ACT score may also require a student to take English 101 in addition as a prerequisite for English 102.)

†Both constitution requirements may be satisfied by History 111 or Political Science 103. United States Constitution by Political Science 409, 410; History 101, 401. Nevada Constitution by Political Science 208, 408; History 102 (since Spring 1971), History 217.

d) a minimum of 51 credits in business and economics subjects which include the following:

	Credit
Acc. 201—Financial Accounting and Acc. 202—Managerial Accounting	6
B.A. 325—Legal Environment or B.A. 373 and 374—Business Law I and II	3-6
Ec. 201-202—Principles of Economics I and II	6
Ec. 261-262—Principles of Statistics I and II	6
Economics 300 (or above)—theory course	3
I.S. 250—Introduction to Business Computer Programming	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
Other College of Business Administration courses to an overall total of	51

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:* Anthropology 102; Biology 100, 101, 103; Botany 104, 105; Chemistry 100, 101, 102, 103, 104, 142; Environment 101; Geography 103; Geology 101, 101A, 102, 105, 160; mathematics all 100-level courses; physics all 100-level courses; Zoology 103.

Group II, *Social Sciences:* Anthropology 100, 101; Criminal Justice 110, 120; Environment 101; Geography 106, 109; History 101, 102, 111, 201, 202, 217; Journalism 101, 102; Political Science 103, 104; Psychology 101, 102; Sociology 101, 102, or Social Services and Corrections 101; Speech and Theatre 210.

Group III, *Humanities:* Art 115, 210, 212, 215, 216, 217, 218, 256, 257; English 131, 243, 247, 261, 271; French 221; German 221; History 105, 106; Music 121, 201, 202; Philosophy 110, 111, 114; Spanish 221, 222; Speech and Theatre 200, 217, 221, 229.

Sophomore or Upper-Division Courses Which Satisfy Requirements

Courses requiring a prerequisite or sophomore or upper-division standing which may be used to fulfill requirements in natural sciences, social sciences, and humanities include:

Group I, *Natural Sciences and Mathematics:* Anthropology 335, 435; biology courses numbered above 200; botany courses numbered above 200; chemistry courses numbered above 200; Geography 212, 322, 331, 335, 423; geology courses numbered above 200; mathematics courses numbered above 200; Nuclear Engineering 371; physics courses numbered above 200; zoology courses numbered above 200.

Group II, *Social Sciences:* Anthropology courses numbered above 200 except 322, 335, 339, 342, 435; geography courses numbered above 200 except 212, 322, 331, 335; history courses numbered above 300; Journalism 231, 232, 253, 361, 362, 479; political science courses numbered above 200; psychology

courses numbered above 200 except 210; social services and corrections courses numbered above 200; sociology courses numbered above 200; Speech and Theatre 410, 412, 427, 428, 433. (Some honors courses on individual basis.)

Group III, *Humanities:* Anthropology 322, 339, 342; Art 314, 315, 316, 416, 417, 418; English 235, 236, 241, 281, 291, and courses numbered above 300 except 305, 306, 311, 321, 385, 405, 406, 411; French courses numbered above 300 except 301, 305, 306, 309, 407, 408; German courses numbered above 300 except 301, 305, 306, 309, 407, 408; Italian courses numbered above 300 except 305, 306; Latin courses numbered above 300; Music 350, 407, 422, 423, 424; philosophy courses numbered 200 and above; Russian 357, 358; Spanish courses numbered above 300 except 301, 305, 306, 309, 407, 408; Speech and Theatre 317, 321, 414, 415, 416, 423, 471, 472, 473. (Some honors courses on individual basis.)

Upper-Division Courses

No course with a number above 300 is open to freshmen or sohpomores 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 not more than 15 S/U credits (physical education and military science excluded) toward the baccalaureate degree. Business administration majors may register for S/U courses in other colleges but not in the College of Business Administration.

Transfer Credits

Credit may be granted for lower-division courses from other institutions which are comparable to University upper-division courses. Such credit may not be used to satisfy upper-division College of Business Administration core requirements, but may be used to satisfy elective requirements if approved by the Dean. Where lower-division transfer courses parallel upper-division core courses, the student is required to complete an advanced course in the subject to satisfy the core requirement. Ordinarily, elective credit is given for the transfer course.

Accounting and Information Systems

Faculty: Chism, Custer, Hoyt, R.L.C. Miller, W. Miller, Neidert, Palmer, Schueler (Chairman), Smith, Weaver

The Accounting and Information Systems Department brings together the individual disciplines of accounting, information systems and office administration. The student 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 understands.

The accounting major is provided with the theories and procedures which prepare the student for the many facets of the accounting professions, i.e., 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

	Credits
Engl. 102—Composition and Literature*	3
Math. 160—Calculus for the Social and Biological Sciences	3
Mathematics or natural science	3
Philosophy	2
Humanities and social science	15
Electives—nonbusiness	6
*See college core requirement	32

SOPHOMORE YEAR

	Credits
Acc. 201—Financial Accounting	3
Acc. 202—Managerial Accounting	3
I.S. 250—Introduction to Business Computer Programming	3
Ec. 201-202—Principles of Economics	6
Ec. 261-262—Principles of Statistics	6
Humanities and social science	7
Mathematics or natural science	3
	31

Accounting Option

JUNIOR YEAR

	Credits
Acc. 303-304—Intermediate Accounting	6
Acc. 309-310—Cost Accounting I and II	6
B.A. 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

SENIOR YEAR

	Credits
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
O.A. 404—Business Communications	3
Electives—nonbusiness (including four units numbered 300 or above)	7
Electives—any area	7
	32

*Recommended but not required

Accounting and Information Systems Option

JUNIOR YEAR

	Credits
Acc. 303-304—Intermediate Accounting	6
Acc. 309-310—Cost Accounting	6
I.S. 251—COBOL	3
I.S. 350—Computer Operating Systems	3
Mgr.S. 323—Organization and Interpersonal Behavior	3
B.A. 373-374—Business Law I and II	6
Ec. 300 (or above)—theory course	3
Elective—nonbusiness	3
	33

SENIOR YEAR

	Credits
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 Communications	3
Mgr.S. 310—Marketing Principles	3
Electives—nonbusiness	6
Mgr.S. 352—Operations Management	3
	32

*Recommended but not required

Information Systems Option

FRESHMAN YEAR

	Credits
Engl. 102—Composition and Literature*	3
Math. 160—Calculus for Social and Biological Sciences	3
Philosophy	2 or 3
Humanities and social science	13
Mathematics or science	3 or 4
I.S. 250—Introduction to Business Computer Programming	3
Other nonbusiness core requirements	3 to 5
	32

*See college core requirement

SOPHOMORE YEAR

	Credits
Acc. 201—Financial Accounting	3
Acc. 202—Managerial Accounting	3
Ec. 201-202—Principles of Economics	6
I.S. 251—COBOL	3
Ec. 261-262—Principles of Statistics	6
Humanities and social science	8
Mathematics or science	3
	32

JUNIOR YEAR

	Credits
Accounting elective	3
I.S. 252—FORTRAN	3
I.S. 350—Computer Operating Systems	3
I.S. 352—Computer Applications	3
Electives—any area	4
Electives—nonbusiness	7
Mgr.S. 323—Organization and Interpersonal Behavior	3
Mgr.S. 352—Operations Management	3
Ec. 300 (or above)—theory course	3
	32

SENIOR YEAR

	Credits
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
Electives—nonbusiness	3
Electives—any area	8
Mgr.S. 310—Marketing Principles	3
B.A. 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 degree in business administration.

FRESHMAN YEAR

	Credits
Hist. 111—Survey of American Constitutional History*	3
Engl. 102—Composition and Literature*	3
O.A. 101-102—Elementary and Intermediate Typewriting	4
O.A. 111-112—Elementary and Intermediate Stenography	6
Philosophy	2 or 3
Math. 160—Calculus for the Social and Biological Sciences	3
I.S. 250—Introduction to Business Computer Programming	3
Humanities	5
Social science	3
	32 or 33

SOPHOMORE YEAR

	Credits
Ec. 201-202—Principles of Economics I and II	6
Acc. 201—Financial Accounting	3
Acc. 202—Managerial Accounting	3
Psy. 101—General Psychology	3
O.A. 202—Business Machines	2
O.A. 211 or 212—Advanced Stenography	3
Humanities	4
Natural science	3
Electives	5
	32

JUNIOR YEAR*

	Credits
Ec. 261-262—Principles of Statistics I and II	6
Mgr.S. 323—Organization and Interpersonal Behavior	3
Mgr.S. 310—Marketing Principles	3
B.A. 373-374—Business Law I and II	6
Humanities	2
Natural science	3
Social science	6
Ec. 300 (or above)—theory course	3
	32

SENIOR YEAR**

	Credits
Mgr.S. 352—Operations Management	3
Mgr.S. 365—Corporation Finance	3
O.A. 300—Office Organization and Management	3
O.A. 404—Business Communications	3
Electives	20
	32

*See college core requirement.

**Sufficient credit 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	Credits
Engl. 102—Composition and Literature*	3
Hist. 111—Survey of American Constitutional History*	3
Psy. 101—General Psychology	3
Natural science and mathematics	9
Humanities	5
Social science	3
BUSINESS COURSES	
O.A. 102—Intermediate Typewriting	2
O.A. 111, 112, 211—Stenography (any two courses)	6
Acc. 201—Financial Accounting	3
I.S. 250—Introduction to Business Computer Programming	3
Ec. 201—Principles of Economics I	3
O.A. 202—Business Machines	3
O.A. 302—Secretarial Procedures	3
B.A. 373—Business Law I	3
Electives (nonbusiness and business)	12
	64

*See college core requirement.

Economics

Faculty: Atkinson, Brooks, Cargill, Chu, Dahl, Eadington, Houwink, Larsen (Chairman), Reed, Wilson, Wofford

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 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 adminstration.

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. 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. The other program leads to the Bachelor of Arts in economics and follows the traditional liberal arts approach (see Bachelor of Arts degree).

FRESHMAN YEAR

	Credits
Engl. 102—Composition and Literature*	3
P. Sc. 103—Principles of American Constitutional Government*	3
Math. 160—Calculus for the Social and Biological Sciences	3
Philosophy	3
Social science	6
Electives	9
Nonbusiness electives	3
	30

SOPHOMORE YEAR

	Credits
Acc. 201—Financial Accounting	3
Acc. 202—Managerial Accounting†	3
I.S. 250—Introduction to Business Computer Programming	3
Ec. 201-202—Principles of Economics	6
Ec. 261-262—Principles of Statistics	6
Humanities	4
Mathematics or natural science	3
Electives	2
	30

JUNIOR YEAR

	Credits
B.A. 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

*See college core requirements.
†or Accounting 309—Cost Accounting I.
‡or Business Administration 373—Business Law I.

SENIOR YEAR

	Credits
Humanities	2
Social science	3
Other economics courses (300 or above)	13
Nonbusiness electives	12
Electives	4
	34

Managerial Sciences

Faculty: Ansari, Atwell, Cotter, Duffy, Evans, Gillette, Haig, Kaye, Sekiguchi, Stoess, Troxel, Winne, Zane (Chairman)

The Managerial Sciences Department permits the student, in consultation with the adviser, to develop an academic program which provides specialization in course work designed to meet specific career objectives. Except for college requirements and for rather broad departmental restrictions, each student's program potentially is different from other student programs. However, for those students who wish to follow the traditional program concentrations within the individual disciplines and/or subdisciplines of *advertising man-*

agement, commercial banking, consumer behavior, financial management, institutional management, insurance management, international marketing, investments, management, marketing, marketing research, personnel and industrial relations, public administration, quantitative marketing, real estate, and retailing and distribution, detailed curricula are available from the advisers or the department. 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 area of concentration prior to the beginning of their junior year 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 and Literature*	3
Math. 160—Calculus for the Social and Biological Sciences	3
P.Sc. 103—Principles of American Constituional Government†	3
Social science elective	6
Humanities elective	6
Natural science or mathematics elective	6
Nonbusiness elective	5
	32

SOPHOMORE YEAR

	Credits
I.S. 250—Introduction to Business Computer	3
Ec. 201-202—Principles of Economics I and II	6
Acc. 201—Financial Accounting	3
Acc. 202—Managerial Accounting	3
Ec. 261-262—Principles of Statistics I and II	6
Social science electives	6
Elective	2
Humanities elective	3
	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. 488—Policy Formulation and Administration	3
B.A. 373—Business Law I or B.A. 325—Legal Environment	3
Ec. 300 (or above)—theory course	3
Area of Concentration Requirements:	
Additional courses in managerial sciences	12
Additional courses in managerial sciences or other disciplines in the college or University	19
Nonbusiness electives	12
	64

*University requirement. (ACT scores may also require a student to take English 101 in addition as a prerequisite for English 102.)

†Both requirements may be satisfied by History 111 or Political Science 103; United States Constitution requirement by Political Science 409, History 101, 401; Nevada Constitution by Political Science 208, 408, History 102 (since Spring 1971), History 217.

Areas and Subareas of Concentration with Suggested Courses for Each

Finance Area

Commercial Banking: B.A. 374—Business Law II, Ec. 303—Money and Banking, Mgr.S. 415—Commercial Bank Management, Mgr.S. 370—Investments, Ec. 451—Public Finance, plus 9 additional hours in the finance discipline.

Financial Management: Acc. 354—Industrial Accounting, Mgr.S. 404—Problems in Business Finance, Mgr.S. 415—Commercial Bank Management, B.A. 374—Business Law II, plus 9 additional hours in the finance discipline.

Insurance Management: Mgr.S. 353—Risk and Insurance, Mgr.S. 401—Life Insurance, Mgr.S. 402—Property Liability Insurance, Mgr.S. 403—Risk Management Seminar, plus 6 additional hours in the finance discipline.

Investments: Mgr.S. 270—Principles of Real Estate, Acc. 303—Intermediate Accounting or Acc. 309—Cost Accounting I, Mgr.S. 404—Problems in Business Finance, Mgr.S. 415—Commerical Bank Management, B.A. 374—Business Law II, plus 9 additional hours in the finance discipline.

Real Estate: Mgr.S. 270—Principles of Real Estate, Mgr.S. 375—Land Resources: Value and Allocation, Mgr.S. 378—Real Estate Law, B.A. 374—Business Law II, Mgr.S. 430—Real Estate Evaluation, plus 9 additional hours in the finance discipline, Mgr.S. 431—Real Estate Appraisal Problems.

Management Area

General Management: Mgr.S. 362—Production Management, Mgr.S. 367—Personnel Administration, Mgr.S. 452—Comparative Management, Mgr.S. 460—Management: Theory and Practice, Mgr.S. 461—Advanced Operations Management, Mgr.S. 462—Business and Society, Acc. 354 — Industrial Accounting, O.A. 404—Business Communications.

Institutional Management: Mgr.S. 301-302—Institutional Management I and II, Mgr.S. 362—Production Management, Mgr.S. 367—Personnel Management, Mgr.S. 453—The Human Element in Industry, Mgr.S. 477—Seminar in Institutional Management, O.A. 404—Business Communications, Ec. 365—Labor Economics.

Personnel and Industrial Relations: Mgr.S. 367—Personnel Administration, Mgr.S. 362—Production Management, Mgr.S. 387—Wage and Salary Administration, Mgr.S. 427—Problems in Labor Relations and Personnel Administration, Mgr.S. 453—The Human Element in Industry, Mgr.S. 460—Management: Theory and Practice, O.A. 404—Business Communications, Ec. 365—Labor Economics.

Public Administration: P.Sc. 341—Elements of Public Administration, P.Sc. 342—Politics of Administration, Jour. 301—Public Relations Techniques, Acc. 307—Government Accounting, Acc. 309—Cost Accounting I, Acc. 354—Industrial Accounting, Ec. 451—Public Finance, Ec. 454—Industrial Organization and Public Policy, P.Sc. 310—Problems in American Government, Mgr.S. 367—Personnel Administration, P.Sc. 442—Public Personnel Administration, P.Sc. 441—Public Financial Administration, Ec. 322—Intermediate Income Theory, B.A. 374—Business Law II.

Marketing Area

Advertising: Jour. 301—Public Relations, Jour. 356—Principles of Advertising, Jour. 357—Laboratory of Ad-

vertising, Jour. 373—Typography and Layout, Psy. 261—Social Influence, Mgr.S. 422—Advertising Management, Mgr.S. 489—Marketing Management.

Consumer Behavior: Psy. 205—Elementary Analysis of Behavior, Psy. 261—Social Influence Process, Psy. 362—Group Structure and Process, Mgr.S. 489—Marketing Management, Soc. 342—Social Stratification, Mgr.S. 361—Retailing, Mgr.S. 421—Sales Management.

International Marketing: Mgr.S. 452—Comparative Management, Mgr.S. 420—International Finance, Ec. 458—International Economics, Mgr.S. 461—International Marketing, Anth. 100—General Anthropology, Anth. 201—World Ethnology, Anth. 312—Comparative Social Organization, Anth. 330—Material Culture and Technology, Anth. 350—Economic Anthropology.

General Marketing: Mgr.S. 361—Retailing, Mgr.S. 421—Sales Management, Mgr.S. 422—Advertising Management, Mgr.S. 471—Marketing Research, Mgr.S. 489—Marketing Management, O.A. 404—Business Communications, Jour. 356—Principles of Advertising.

Marketing Research: Psy. 210—Statistical Methods, Psy. 311—Psychological Tests, Mgr.S. 489—Marketing Management, Mgr.S. 471—Marketing Research.

Quantitative Marketing: Ec. 441—Introduction to Econometrics, Ec. 431—Introduction to Mathematical Economics, Mgr.S. 489—Marketing Management, B.A. 374—Business Law II, Mgr.S. 455—Business Logistics, Mgr.S. 471—Marketing Research.

Retail and Distribution: Mgr.S. 361—Retailing, Mgr.S. 345—Industrial Purchasing, Mgr.S. 351—Transportation, Mgr.S. 455—Business Logistics, Mgr.S. 422—Advertising Management, Mgr.S. 489—Marketing Management, Jour. 356—Principles of Advertising.

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 present the equivalent of 16 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. *In addition to the following, all students must satisfy the* **University requirement in military science.**

FRESHMAN YEAR

	Credits
P.Sc. 103—Principles of American Constitutional Government*	3
Foreign language†	10
Engl. 102—Composition and Literature*	3
Math. 160—Calculus for the Social and Biological Sciences	3
Social science	3
Electives	8
	30

SOPHOMORE YEAR

	Credits
Foreign language†	6
Mathematics or natural science	3
Phil. 101—Introduction to Philosophy	3
Soc. 101—Principles of Sociology	3
Ec. 201-202—Principles of Economics	6
Ec. 261-262—Principles of Statistics	6
Electives	3
	30

JUNIOR YEAR

	Credits
Psy. 101—General Psychology	3
Ec. 303—Money and Banking	3
Ec. 321-322—Intermediate Economic Theory	6
Social science	3
Natural science laboratory course	4
Humanities	3
Electives	12
	34

SENIOR YEAR

	Credits
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

*See college core requirements.

†The foreign language requirements may be satisfied with (1) four high school entrance units in one foreign language; or two high school entrance units in each of two foreign languages; or (2) two high school entrance units in one foreign language and 10 credits in another foreign language; or (3) 10 credits in each of two foreign languages; or (4) course 204 or 209 in one foreign language.

Graduate Programs

The College of Business Administration grants the following advanced degrees:

1. Master of Business Administration (major: business administration with specialization in accounting, finance, management, or marketing).
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.

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 advisor or thesis director. Meeting the requirements for admission to graduate standing is a prerequisite for enrollment in business administration courses for graduate credit. 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:

1. A baccalaureate degree from an accredited institution with an overall grade-point average of at least 2.50 on a scale of 4.00, and
2. A satisfactory score on the Admission Test for Graduate Study in Business (ATGSB). Applicants must submit ATGSB scores 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 2.50 on a scale of 4.00, and

2. A satisfactory score on the Graduate Record Examination (Aptitude and Advanced Economics tests), submitted prior to admission, and

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 of Nevada, Reno, as a Graduate Special student (see below).

The Admission Test for Graduate Study in Business 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, New Jersey 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.

Minor Fields. For a minor in business administration a student should complete at least three of the second-year business administration 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 3.00 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 3.00 by the end of the first probationary semester.

First-year Core	*Credits*
Acc. 915—Accounting Concepts and Analysis	3
B.A. 915—Legal Environment of Business	3
Ec. 915-916—Statistics for Business Decisions (3 credits each)	6
Ec. 917-918—Economic Analysis and Policy (3 credits each)	6
I.S. 916—Business Decision Making and Analysis	3
Mgr.S. 915—Business Finance	3
Mgr.S. 916—Advanced Management	3
Mgr.S. 917—Marketing Analysis and Strategies	3
	30

All or part of the first-year core program may be waived, with the approval of the dean of the College of Business Administration, for those students whose baccalaureate degree is in the field of business administration or for those students who have completed the equivalent of all or a portion of the first-year core program in classes at the undergraduate level. Recommendations concerning waivers of specific course requirements are made by the student's adviser and graduate committee, which give consideration to

1. equivalencies, which may involve two or more undergraduate courses as substitutes for one graduate course, (i.e., Economics 917 might be waived if the student has satisfactorily completed Economics 201-202),

2. progress in the disciplines involved since undergraduate courses were taken, and

3. grades made in the undergraduate courses.

Second-year Core	*Credits*
Acc. 901—Accounting for Management Analysis	3
Ec. 908—Public Policy and Business Performance	3
Mgr.S. 932—Financial Management	3
Mgr.S. 942—Advanced Marketing Seminar	3
Mgr.S. 952—Seminar in General Management	3
	15

Master of Business Administration

The Master of Business Administration degree program requires a major in business administration and may include a field of specialization in accounting, finance, management, or marketing. At least 15 semester credits are required in graduate courses outside of the field of specialization. Minimum requirements are as follows:

Plan A (Thesis Option)

	Credits
1. Completion of the first-year business administration core, except for courses which may be waived	0-30
2. Completion of the entire second-year business administration core	15
3. Additional graduate courses including at least 3 credits in 900-level courses	9
4. Completion of a thesis in the field of specialization	6
	30-60

Major Programs. At least 18 graduate credits 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)

	Credits
1. Completion of the first-year business administration core, except for courses which may be waived	0-30
2. Completion of the entire second-year business administration core	15
3. Mgr.S. 941—Seminar in Research Methodology	3
4. Mgr.S. 958—Business Policy	3
5. Additional graduate courses, including at least 3 credits in 900-level courses	12
	33-63

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 will cover the second-year business administration core.

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:

	Credits
1. Completion of the first-year business administration core, except for courses which may be waived	0-30
2. Completion of a major in accounting, finance, management, or marketing	12
3. Completion of a minor	6
4. Additional graduate courses	6
5. Completion of a thesis in the major field	6
	30-60

At least 15 of the graduate credits beyond the first-year core (excluding the thesis) must be in 900-level courses.

Master of Science and Master of Arts in Economics

Specific course requirements for these degrees 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 900-level courses.

College of Education Building

College of Education

EDMUND J. CAIN, *Dean*

Departments of Instruction: Counseling and Guidance Personnel Services, Educational Foundations, Elementary and Special Education, School Administration and Supervision, and Secondary Education.

The main objective of the College of Education is to prepare professional school personnel.

A second major objective 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. Support for maintaining these objectives is provided through the college departments of instruction, the Learning and Resource Center, the Reading Study Center, Simulation-Demonstration Facility, Early Learning Center (K-2), 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 degrees are granted with majors or minors in the following basic areas: counseling and guidance personnel services, educational foundations, elementary and special education, school administration and supervision, and secondary education. Specialization may be attained in library education, reading, and early childhood education.

The various curricula under the supervision of the College are designed to:

1. Encourage students who practice desirable and effective citizenship and who have both character and personality qualifications suitable for work with children and youth to prepare for the profession of teaching, and other educational specializations.
2. Select and retain the most promising candidates in teacher education.
3. Provide a background of general academic education for effective participation in American citizenship.
4. Stimulate the student to secure adequate mastery of the fields and subjects which he desires to teach.
5. Develop proficient skills in professional techniques and attain knowledge for effective teaching.
6. Enable the development of an understanding of the role of the school and the teacher in a democratic society.
7. Help the prospective teacher to obtain an understanding of the characteristics of the child and the nature of his educational growth.
8. Develop an abiding interest in professional growth and in the teaching profession.
9. Provide specialized education on an advanced level for teaching and for administrative leadership in the schools and colleges.

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 teachers, 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 toa 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 grade-point average in the major teaching field.

6. All general University requirements, i.e., GPA, resident credit, U.S. and Nevada constitutions, and military science, if applicable.

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 grade-point average 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
Communication Skills	6
English 102	3
Speech and Theatre 113	3
Humanities	8
Introduction to language	3
Introduction to literature study	3
Music (fundamentals)	2
Social Science (preferably distributed as follows)	20
U.S. and Nevada constitutions requirement	3-6
European or world history or political science	6
History (American)	6
Geography, sociology, economics, anthropology	5-8
Science and Mathematics	15-18
Biological science	4-6
Physical science	5-6
Mathematics (general)	6
Psychology (general)	3
Health	2
Military Science	Meet University requirement
Area of Concentration	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 Special Education Teaching Curricula

(Mental Retardation, K-12, Dual Certification Elementary and Mental Retardation Area—Speech Correction and Audiology)

	Minimum Credits
Section A: Mental Retardation K-12	
Communication Skills	9
English	6
Speech fundamentals	3
Humanities	6
Music fundamentals	2
Teaching music	2
Teaching art	2
Social Science	9
U.S. and Nevada constitutions requirement	3-6
History	6
Science (must include one laboratory course)	10
Preferably distributed in biological, human chemistry, and/or anatomical science areas.	
Psychology (general)	3
Health	2
Military Science	Meet University requirement
Area of Concentration	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. Area of concentration not required for dual certification.

	Minimum Credits
Section B: Dual Certification — Elementary and Mental Retardation Area	
Student must complete all requirements of Section A with the exception of Area of Concentration. In addition to Section A:	
Math. 173 and 174—Contemporary School Mathematics I and II	6
Section C: Speech Pathology and Audiology (Speech Pathology Certification only)*	
Communication Skills	9
English	6
Speech fundamentals	3
Social Science	15
History	6
U.S. and Nevada constitutions requirement	3-6
Anthropology (general humanities)	6
Psychology-Sociology, Counseling and Guidance Personnel Services	19
General psychology	3
General course work in psychology, sociology, and counseling to complete an area of concentration in behavioral skills	16
(Sequence to be approved by adviser and Speech and Theatre Department.)	
Science (must include one laboratory course)	10
Preferably distributed in biological, human chemistry, and/or anatomical science areas.	
Health	2
Military Science	Meet University requirement

*Must complete practicum in clinical experience before working in speech correction in the public schools. Student teaching is in speech correction.

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 cultural 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 Secondary Education.

Approximately 50 credits in general academic education courses are recommended as follows:

	Minimum Credits
Communication Skills	9
English 101, 102	6
Speech and Theatre 113	3
Humanities	8
Art, music, philosophy or English	8
Social Science	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).	
Psychology 101 (general)	3
Health and Physical Education	4
Military Science	Meet University requirement
FOR BACHELOR OF ARTS DEGREE IN EDUCATION	
Foreign languages (see Arts and Science requirements)	12
Biological and physical science	6
FOR BACHELOR OF SCIENCE DEGREE IN EDUCATION	
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 Department of Secondary Education.)

Agriculture (vocational)*
Industrial Education
Art
Journalism
Biological Sciences
Mathematics
Business Education
Music
Chemistry
Physical Education (men)
Earth Sciences
Physical Education (women)
English
Physical Sciences
French
Physics
German
Political Science
Health Education
Social Studies
History
Spanish
Home Economics (vocational)*
Speech and Theatre

(The student should secure adviser's approval before beginning a major.)

*Students must enroll in College of Agriculture.

Minor Teaching and Supporting Fields

(An outline of specific requirements should be obtained from the Department of Secondary Education.)

Agriculture
Italian
Anthropology
Journalism
Art
Latin
Biological Sciences
Mathematics
Business Education
Music
Chemistry
Physical Education (men)
Earth Sciences
Physical Education (women)
Economics
Physical Sciences
English
Physics
French
Psychology
Geography
Political Science
German
Russian
Health Education
Social Studies
History
Sociology
Home Economics
Spanish
Industrial Education
Speech and Theatre

Professional Education Foundation Areas and Courses

Five 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 Education 103, 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.

Certification requirements in Nevada and surrounding states are generally met in the following

pattern of 41 credits of course work for elementary teaching or 22 or 23 credits of course work for secondary teaching.

Foundations for Elementary Teaching

	Minimum Credits
I. *The Sociological Bases for Education*	4
Ed. 103—Basic Foundations of Education 2	
Ed. 210—Legal Foundations of Education 2	
II. *Psychological Factors–Human Growth and Development*	3
E.S.Ed. 270—Human Growth and Development (or equivalent) 3	
III. *General Principles, Methods, and Materials for Elementary Education*	13
(Taken in block form to interrelate these areas.)	
E.S.Ed. 322—Elementary Mathematics 2	
E.S.Ed. 323—Elementary Language Arts and Children's Literature 3	
E.S.Ed. 324—Reading 3	
E.S.Ed. 325—Elementary Science 2	
E.S.Ed. 329—Elementary Social Studies 3	
Supporting Course Work	10
E.S.Ed. 333—Creative Experience in Early Childhood Education 3	
Ed. 420—Audio-Visual 2	
Mus. 324—Teaching of Elementary School Music 2	
Art 342—Teaching Elementary School Art ... 3	
IV. *Supervised Teaching in Elementary Education*	14
E.S.Ed. 406—Practicum in the Reading Clinic 3	
E.S.Ed. 451—Supervised Teaching 8	
E.S.Ed. 481—Special Problems in Education . 3	
	44

Foundations for Special Education

	Minimum Credits
Section A–Mental Retardation, K-12	
Student must complete Foundations for Elementary Teaching I, II, and III, plus areas I and II of Foundations for Special Education.	
I. *Specific Principles, Methods, and Materials* ..	21
E.S.Ed. 172—Introduction to Special Education 3	
E.S.Ed. 310—Exceptional Child Education ... 3	
E.S.Ed. 356—Correction Speech Defects 3	
E.S.Ed. 411—Introduction to Mental Retardation 3	
E.S.Ed. 447—Curriculum Development EMR 3	
E.S.Ed. 466—Curriculum Development TMR 3	
E.S.Ed. 473—Advising Exceptional Children . 3	
II. *Supervised Teaching in Special Education* ...	11
E.S.Ed. 453—Teaching Exceptional Children . 8	
E.S.Ed. 454—Problems, Special Education ... 3	
	32
Section B–Dual Certification – Elementary and Mental Retardation Areas	
Student must complete all requirements of Foundations for Elementary Teaching I—IV, plus areas I and II of Foundations for Special Education.	
*Section C–Speech Pathology and Audiology (Certification in Speech Pathology only)**	
I. *The Sociological Bases for Education*	4
Ed. 103—Basic Foundations of Education 2	
Ed. 210—Legal Foundations of Education 2	
II. *Psychological Factors*	3
E.S.Ed. 270—Human Growth and Development 3	
III. *General Principles, Methods, and Materials*	12
E.S.Ed. 401—Individualized Reading 3	
E.S.Ed. 402—Reading, Lower Elementary Grades 3	
E.S.Ed. 403—Reading, Upper Elementary Grades 3	
E.S.Ed. 404—Survey of Remedial Reading Problems 3	
IV. *Specific Principles, Methods, and Materials*	25
E.S.Ed. 172—Introduction to Special Education 3	
S.P.A. 259—Phonetics 2	
S.P.A. 310—Normal Language Acquisition .. 3	
S.P.A. 357—Speech Science 3	
S.P.A. 359—Speech Pathology 3	
S.P.A. 360—Speech Correction Methods 3	
S.P.A. 362—Audiology 3	
S.P.A. 461—Advanced Speech Pathology 2	
S.P.A. 466—Rehabilitation for Hearing Handicapped 3	
V. *Elective Credits in Speech Correction and Audiology*	4
S.P.A. 459—Seminar in Clinical Procedures 2-4	
Sp.Th. 495-498—Independent Study 1-4	
VI. *Supervised Teaching–Speech Correction*	10
S.P.A. 363—Practicum in Speech Correction* 2-4	
E.S.Ed. 453(b)—Student Teaching Exceptional Child — Speech therapy 8	
	58

*Must complete practicum in clinical experience before working in speech correction in the public schools. Student teaching is in speech correction.

Foundations for Secondary Teaching

	Minimum Credits
I. *The Sociological Bases for Education*	4
Ed. 103—Basic Foundations of Education 2	
Ed. 210—Legal Foundations of Education 2	
II. *Human Growth and Development*	3
C.A.P.S. 330—Educational Psychology 3	
III. *Evaluation and Guidance*	3
C.A.P.S. 400—Introduction to Counseling and Guidance 3	
IV. *General Principles, Materials, and Methods of Secondary Education*	4 or 5
S.Ed. 401—General Principles, Materials, Methods 2	
Special methods (teaching field) ..... 2 or 3	
V. *Supervised Teaching in Secondary Education*	8
S.Ed. 457—Supervised Teaching 8	
	22 or 23

The Department of Secondary Education offers a

professional semester plan. Secondary Education 401, C.A.P.S. 400—Special Methods, and Secondary Education 457 are scheduled in block form within one semester. English majors may take Secondary Education 460 instead of Counseling and Guidance Personnel Services 400. Prerequisites for the professional semester include Education 103, Education 210, Counseling and Guidance Personnel Services 330, and approval of the department.

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.

All student teachers are required to initiate a professional placement file at the University as part of the student teaching experience.

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 his teaching privilege.

Admission to supervised teaching is secured through the office of the department chairman 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.

Before placement in the public school, student teachers must complete a physical examination.

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

Graduate students may major in counseling and guidance personnel services (secondary, college and vocational); elementary and special education (may include specialization in elementary reading, early childhood education, mental retardation, or the educationally handicapped); educational foundations, school administration (may include specialization in elementary or secondary principalship, school administration and supervision); or secondary education.

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 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 either teaching, counseling or administration and supervision are available on request. All candidates for these degrees are required to complete Education 900 and two of the following: Education 903, 905, 907.

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 Education 900, 903, 905, and 907.

A nonthesis Master of Arts or Master of Science degree 32-credit option may be selected.

Doctor of Education Degree

Implementation of the program is contingent

upon funding. For information concerning the current status, contact the Dean, College of Education.

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 Departments of Counseling and Guidance Personnel Services, Elementary and Special Education, School Administration and Supervision, and Secondary Education. 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.

Departmental Offerings

Counseling and Guidance Personnel Services

Faculty: Bailey (Chairman), Basta, Clarke, Meyers, Pierce

The Department of Counseling and Guidance Personnel Services 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.

Elementary and Special Education

Faculty: Butorac, Campbell, Guckes, Hollingsworth, Johns (Chairman), Kelly, Linskie, Tower

The Department of Elementary and Special Education offers both an undergraduate and graduate major in elementary and special education. A minimum of 32 credits of approved work is required for the undergraduate major and a minimum of 16 credits is required for the graduate major.

Educational Sequence No. 1: Students are required to enroll in Elementary and Special Education 322, 323, 324, 325, 329, and an elective course.

Educational Sequence No. 2: Students are required to enroll in Elementary and Special Education 406, 451, 480.

Educational Foundations

Faculty: Bartl, Krajewski, Peltier (Chairman)

The Department of Educational Foundations offers a graduate major and minor in education. See Department Chairman for program.

School Administration and Supervision

Faculty: Dodson, Loveless, Tucker (Chairman)

The Department of School Administration and Supervision offers graduate work only, leading to a Master of Arts degree and/or a Master of Education degree with a major in school administration and supervision. 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.

Secondary Education

Faculty: Davis, Gilman, Lee, Phelps (Chairman), Trent

The Department of Secondary Education offers a major 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 office of the Chairman of the Department of Secondary Education.

Members of the department will assist graduate students in planning balanced programs suited to their educational objectives.

Service Divisions

Learning and Resource Center

Faculty: Cowlishaw, Mundt, Reed (Director)

The Teaching and Resource Center serves as a laboratory for preparing educational personnel. A wide range of instructional materials, educational media, video recording and a production center are made available to students. The center also houses the reading clinic and the independent learning laboratory.

Research and Educational Planning Center

Faculty: Davis, Edsall, Huber, Taylor, Trout (Director)

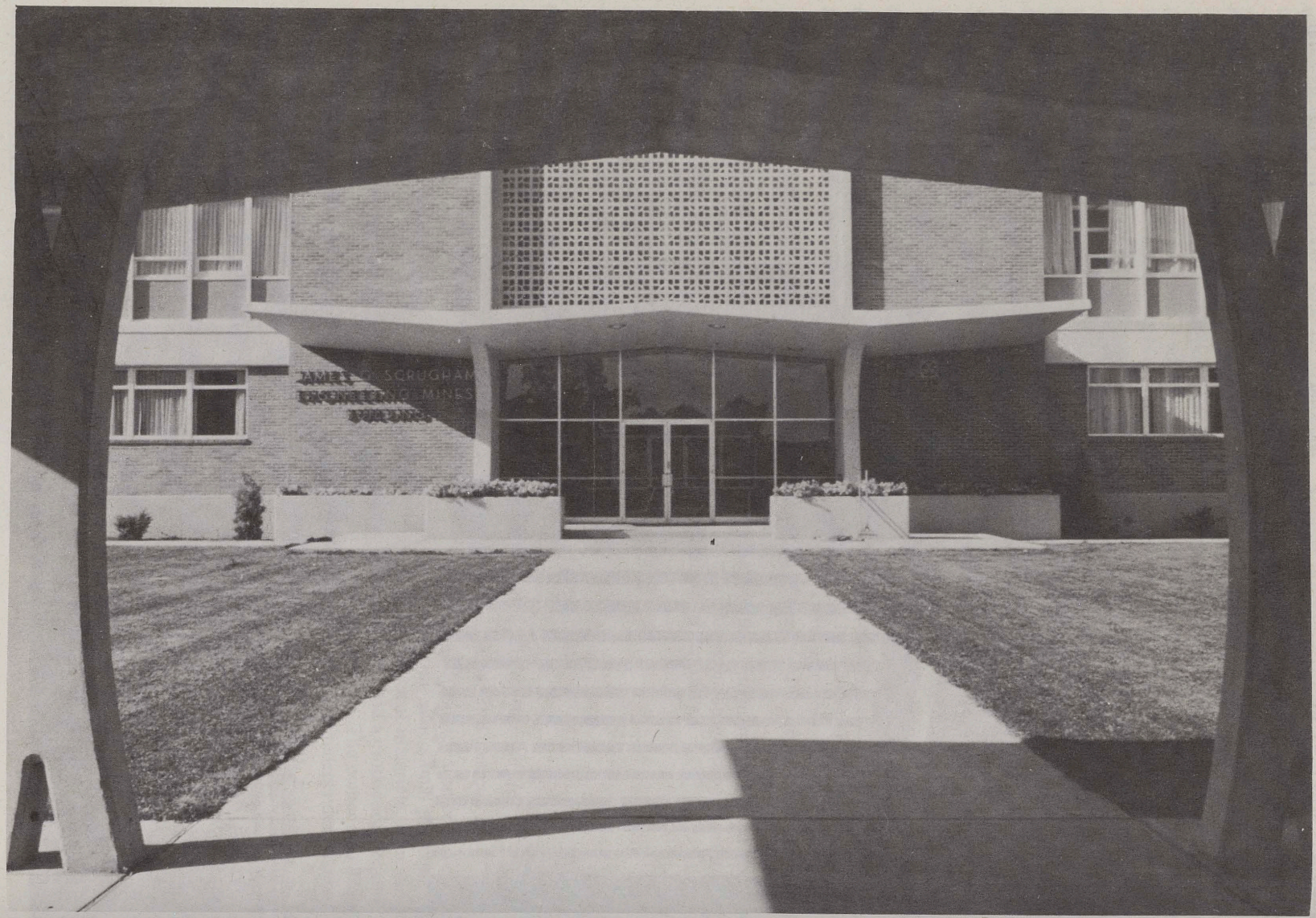
This center serves the college and field of education with services and projects designed to improve education. The center houses the School Facility Planning Laboratory and the Research Coordinating Unit along with a number of short term research and planning projects of national, state, and local origin.

Reading - Study Center

Director: Paul M. Hollingsworth

The Reading Study Center provides reading services to pupils and students of the State of Nevada. Fees for these services are dependent upon the type and kind 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 Study Center in the College of Education.

Mack Social Science Building



Scrugham Engineering-Mines Building

College of Engineering

CHARLES R. BREESE, *Dean*

Undergraduate instruction is provided in the civil, electrical, and mechanical engineering fields, 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 Degree in Engineering Design or Electronics Engineering Technology.

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.

Few fields of endeavor offer greater stimulation, challenge, or reward to the inquiring and disciplined mind; few fields of study require greater devotion to rigorous thinking, to self-discipline, or to the preservation of high standards of personal and professional integrity.

The various engineering curricula provide the necessary basic and advanced knowledge to prepare students for positions of responsibility and leadership in their field of interest, both now and in the future. The curricula prepare the student not only to meet the technical and ethical demands of the profession, but also to take his place as an informed citizen in his community.

The civil, electrical, and mechanical engineering, electronics technology, and engineering design technology curricula are accredited by the Engineers' Council for Professional Development, which is the agency accrediting engineering colleges throughout the United States. The members of the faculty maintain professional 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.

A form of cooperative program is also 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 Technology or Associate of Science in Engineering Design Technology.

Undergraduate 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 Engineerng.

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, energy conversion, water resources, structural analysis, and nucleonics, subject to the University, College, and Graduate School rquirements.

Mathematics and Science Entrance Requirements

In addition to the University requirements (see Admission section of this catalog) for admission, the College of Engineering specifically recommends 3 units of mathematics (1½ algebra, 1 geometry, and ½ trigonometry) plus one unit of science. The unit of science may be in either life or physical science. It is strongly recommended that two high school units of science be completed prior to admission — one each in life science and physical science. In addition, it is helpful if prospective students can take additional mathematics courses while in high school.

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.

In addition, each male student must satisfy the military science requirement.

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 listed by name and number, 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
English 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	59-64
Mathematics 181, 182, 281, and/or 140 and/or 163 and/or 220 and/or 221 and/or Mechanical Engineering 300	16-17
Physics 201, 202, 203, 204, 205, 206	8-12
Chemistry	4-8
Civil Engineering 372	3
Mechanical Engineering 241, 342, 371	9
Humanistic-social courses	15-18
Departmental Requirements	60-69
	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 his 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 of Engineering (excluding two-year technology courses), and all required 100 and 200 courses in the disciplines of mathematics, physics and chemistry, plus all upper-division courses in these disciplines to be counted in computation of the C average for engineering courses.

Civil Engineering

Faculty: Bird, Bonell, Breese, DeAngelis, Douglas, Gupta, Orcutt (Chairman), Shifley

Undergraduate Curriculum

The objective of the program of study in civil engineering is to give the student an educational background from which he 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 waste disposal. The curriculum is designed to give the student an introduction to these disciplines.

The student's attention is directed to the existence of three cooperative training programs available for civil engineering students. The first is a Cooperative Training Program in Highway Engineering offered jointly by the Civil Engineering Department and the Nevada State Highway Department. The second is a similar program for construction offered in cooperation with the Associated General Contractors of Nevada and the third is a program in other phases of civil engineering offered through the local branch of the American Society of Civil Engineers. All programs offer financial assistance to the student through summer employment with the cooperating organizations. For further information write to the Chairman of the Civil Engineering Department.

The curriculum for the Bachelor of Science in Civil Engineering degree is as follows:

University Requirements

	Credits
English 101, 102	6

Basic Sciences

	Credits
Mathematics 140, 181, 182, 281	15
Chemistry 101	4
Physics 201, 202, 204, 205	8
Mechanical Engineering 300	2
Science electives*	6
	35

Humanities and Social Sciences

	Credits
Political Science 103	3
Electives*	15
	18

Communications

	Credits
Engineering 201	3

Engineering Sciences, Analysis, and Design

	Credits
Mechanical Engineering 241, 342, 371	9
Electrical Engineering 375	3
Civil Engineering 140†, 241, 243, 246, 388, 473, 491	18
Civil Engineering 364, 367, 368, 390, 489	12
Civil Engineering 369, 372, 374, 492	8
Civil Engineering 366, 451	6
Civil Engineering 481, 484, 485	10
Technical electives	6
	72
Total credits for B.S. in Civil Engineering degree	134

*Students who have not had mechanical drawing in high school or junior high school are required to take Civil Engineering 101 and postpone Civil Engineering 140 until the second semester.

†Lists of acceptable humanistic-social, science, and technical electives are available in the office of the chairman of the department.

Students enrolled in the Nevada Highway Department Cooperative Program are required to take a 1-credit seminar course (Civil Engineering 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 degree in civil 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 his 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, will normally required a professional paper and is considered most appropriate for those students already having some considerable engineering experience.

Programs leading to the Ph.D. degree in engineering are available in the Civil Engineering Department. Specialty areas include structures, engineering materials, and water resources. The department is also a major contributor to the interdisciplinary graduate program in hydrology which leads to a Ph.D. degree in that field.

Additional information on graduate programs may be obtained by writing to the chairman of the department.

Electrical Engineering

Faculty: Dickinson, Fell, Halacsy, Kleppe, Kosso, Manhart (Chairman), Miller

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 his 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 department offers a cooperative training program for electrical engineering students interested in power. This program is offered jointly by the Electrical Engineering Department and the U.S. Bureau of Reclamation. For further information, write to Director, Power Cooperative Program, Electrical Engineering Department.

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, except for students in cooperative programs.

Students enrolled in cooperative programs are required to register for a one-credit course (Electrical Engineering 198, 298, 398, 498) at the appropriate level each semester, including summers, that they are in the work portion of the cooperative program. These particular course credits are in addition to the total credits required for graduation for other students in electrical engineering.

The Professional EIT examination, administered by a State Board of Engineering Registration, must be taken by all electrical engineering students before graduation during their junior or senior year of study.

Freshman Year

FIRST SEMESTER

	Credits
Engl. 101—Composition and Rhetoric	3
Math. 181—Calculus I	4
M.E. 150—Graphics	3
E.E. 131—Computer Tech. I	1
Humanistic-social elective*	3
Required course	2
	16

*History 111 recommended

SECOND SEMESTER

	Credits
Engr. 201engineering Communications	3
Chem. 101—General Inorganic Chemistry	4
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Lab. I	1
Math. 182—Calculus II	4
E.E. 132—Computer Techniques II	1
Humanistic-social elective	3
	16

Sophomore Year

FIRST SEMESTER

	Credits
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Lab. II	1
Math. 281—Calculus III	4
M.E. 241—Statics	3
E.E. 231—Computer Applications I	1
E.E. 331—Introduction of Computerized Logic	1
Engr. 201—Engineering Communications	3
	16

SECOND SEMESTER

	Credits
Engl. 102—Composition and Literature	3
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Lab. III	1
Math. 221—Differential Equations	2
M.E. 342—Analytic Mechanics for Engineers	3
E.E. 232—Computer Applications II	2
Humanistic-social electives	2
	16

Junior Year

FIRST SEMESTER

	Credits
Math. 163—Introduction to Probability	2
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
	16

SECOND SEMESTER

	Credits
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	3
	17

Senior Year

FIRST SEMESTER

	Credits
E.E. 401—Systems Measurement Tech.	2
E.E. 481—Advanced Electronics	3
E.E. 451—Power Mach.	3
E.E. 485—Feedback Systems	3
E.E. 488—Seminar	1
Technical elective	3
	15

SECOND SEMESTER

	Credits
E.E. 402—Advanced Measurement Tech.	2
E.E. 462—Engineering Analysis	3
Ec. 203—Survey of Economics	3
Humanistic-social elective	3
Technical elective	5
	16

Total credits for B.S. in Electrical Engineering degree . . 128

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 Master of Science 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 the Graduate School 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 his previously completed research or engineering experience.

Mechanical Engineering

Faculty: Anderson, Carlson, Gilstrap, Manning, McKee, Rymers, Schneider, Van Tassel (Acting Chairman)

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 management. 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 management, thermal sciences, and general mechanical engineering.

General Requirements

University Requirements:	Credits
English 101, 102 (or 102 plus 3 electives)	6
U.S. and Nevada constitutions (included in humanistic-social sciences below)	
Basic Sciences:	
Mathematics 140, 181, 182, 281; Chemistry 101, 102 (Bioengineering requires 171, 172); Physics 201, 202, 204, 205; Mechanical Engineering 300	33
Humanistic-Social Sciences:	
History 111 (or equivalent); 15 electives	18
Communications:	
Engineering 201	3
Engineering Sciences:	
Mechanical Engineering 241, 342, 371; Civil Engineering 367, 372; 10 credits electrical engineering, 7 electives	32
Analysis and Design:	
Mechanical Engineering 140, 141, 250, 291, 451, 492, 493 (or 461 lab.), 494; 3 electives	22
Area of Concentration and Technical Electives:	
20 credits	20
	134

Areas of Concentration

Each student should select an area of concentration or the general program. The programs shown are suggested. The specific program is designed in consultation with the adviser. The area of concentration may be changed with permission of the department chairman. The 30 credits include 7 credits engineering science and 3 credits analysis and design.

	Credits
Aerospace:	
Mechanical Engineering 372, 461, 480 (2 of 444, 481, 482, 483); 3 analysis and design electives; 13 technical electives	30
Applied Mechanics:	
Mechanical Engineering 343, 403, 445, 453, 18 technical electives; 1 engineering science elective	30
Bioengineering:	
Biology 101; Medical Sciences 251, 252; Zoology 346, 347; 7 engineering science electives; 3 analysis and design; 1 technical elective	30
Design:	
Mechanical Engineering 242, 343, 430, 452, 461; 13 technical electives; Metallurgical Engineering 350	30
Engineering Management:	
Managerial Sciences 323, 352 (3 courses of 362, 367, 387, 427, 452, 453, 461); 7 engineering science electives; 3 analysis and design electives; 5 technical electives	30
Thermal Sciences:	
Mechanical Engineering 372, 403, 461, 471, 480; 16 technical electives	30
General Mechanical Engineering:	
Mechanical Engineering 343, 372, 452, 461, 471, 480; Metallurgical Engineering 350; 10 technical electives	30

Technical electives must be chosen from upper-division courses in engineering, mathematics, physics, and chemistry, subject to approval by the adviser.

The department currently offers the Master of Science in mechanical engineering degree and participates in the interdisciplinary Ph.D. program in the College of Engineering. Candidates for the Master of Science 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. For details of the graduate programs, see the Graduate School section.

Engineering Science

The program in engineering science, administered by the 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 go in the field of nuclear engineering; or who would like to study in other areas along with engineering; or who does not want to select a major at this point in his academic career. The curriculum allows the student 21 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

FIRST SEMESTER

	Credits
Chem. 103—General Chemistry	4
Engl. 101—Composition and Rhetoric	3
Math. 181—Calculus I	4
E.E. 131—Computer Techniques I	1
N.E. 101—Survey of Nuclear Industry	1
	13

SECOND SEMESTER

	Credits
Chem. 104—General Chemistry	4
Math. 182—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

FIRST SEMESTER

	Credits
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Lab. II	1
Math. 281—Calculus III	4
M.E. 241—Analytical Mechanics	3
Engl. 102—Composition and Literature	3
E.E. 231—Computer Applications I	1
Humanistic-social elective	2
	17

SECOND SEMESTER

	Credits
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Lab. III	1
Math. 220—Introduction to Probability and Statistics	3
Math. 221—Differential Equations	2
M.E. 342—Analytical Mechanics	3
E.E. 232—Computer Applications II	2
Technical elective	3
	17

Junior Year

FIRST SEMESTER

	Credits
E.E. 311—Network Theory	4
M.E. 371—Thermodynamics I	3
C.E. 372—Strength of Materials	3
Humanistic-social elective	5
Technical elective	2
	17

SECOND SEMESTER

	Credits
E.E. 312—Network Theory	3
M.E. 372—Thermodynamics II	3
E.E. 372—Introduction to Electronics	3
Humanistic-social elective	3
Technical elective	5
	17

Senior Year

FIRST SEMESTER

	Credits
M.E. 461—Heat Transfer	3
Ec. 203—Survey of Economics	3
C.E. 367—Elementary Fluid Mechanics	3
Humanistic-social elective	3
Technical elective	4
	16

SECOND SEMESTER

	Credits
Met.E. 350—Elements of Materials Science	4
M.E. 453—Mechanical Vibrations	3
Humanistic-social elective	2
Technical elective	8
	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 (12 credits): Biology 101, 340, 351; Botany 104.

Chemical Processing (15 credits): Chemistry 353, 354; Chemical Engineering 361, 440; Nuclear Engineering 422.

Chemistry (15 credits): Chemistry 243, 244, 353, 354, 435.

Electronics (15 credits): Electrical Engineering 301, 302, 355, 431, 481, 482.

Geology (15 or 16 credits): Geology 101 or 101A, 102, 211, 332.

Materials (15 credits): Civil Engineering 246; Metallurgical Engineering 451; Nuclear Engineering 433, 481; Chemical Engineering 361.

Mathematics (14 credits): Mathematics 262, 311, 312, 321, 429.

Mechanical Design (16 credits): Mathematics 140; Mechanical Engineering 250, 343, 451, 452, 453.

Nuclear Engineering (14 credits): Nuclear Engineering 401, 402, 404, 422, 481; Physics 424.

Physics — Sequence 1 (16 credits): Physics 351, 352, 361, 372, 473, 474.

Physics — Sequence 2 (15 credits): Physics 372, 421, 422, 426; Mathematics 311.

Power (17 credits): Mechanical Engineering 471, 474; Electrical Engineering 346, 350, 355; Nuclear Engineering 450.

Structural Engineering (10 credits): Civil Engineering 481, 483, 484.

Transportation (9 credits): Civil Engineering 246, 366, 451.

Nuclear Engineering

The program in nuclear engineering leading to the Master of Science degree is temporarily suspended due to inadequate funding. Reactivation is dependent upon proper funding becoming available.

Certain nuclear engineering courses are offered under the auspices of the Electrical Engineering Department. In general, these are related to instrumentation and energy generation, as applied in electrical engineering.

Engineering Technologies

Faculty: Baker (Chairman), Cude, Erskine, Macdonald, Sheehan, Walker, White

The Engineering Technologies Department offers two four-semester curricula leading to an Associate of Science Degree in Engineering Design or Electronics Engineering Technology. Admission requirements are listed under Admission Information.

The two programs are designed primarily to provide the student with a broad general engineering background and specific job skills for immediate employment. In addition, graduates of these programs are eligible for continuing study in engineering technology and architecture at other colleges and universities.

Graduation Requirements

Each student must complete a minimum of 65 credits (70 credits in Electronics 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.

Electronics Technology

First Year

FIRST SEMESTER

	Credits
Math 111—Technical Mathematics I	5
E.E.T. 113—Direct Current Circuits	5
Phys. 103—Introductory Physics	3
Engl. 101—Composition and Rhetoric	3
	16

SECOND SEMESTER

	Credits
Math. 121—Technical Mathematics II	3
E.E.T. 122—Alternating Current Circuits	5
E.E.T. 123—Electronics I	5
Phys. 104—Introductory Physics	3
P.Sc. 103—Principles of American Constitutional Government	3
	19

Second Year

FIRST SEMESTER

	Credits
E.E.T. 253—Electronics II	5
E.E.T. 255—Pulse Circuits	5
E.E.T. 256—Computer Fundamentals	5
Engl. 102—Composition and Literature	3
	18

SECOND SEMESTER

	Credits
E.E.T. 260—Research Report	2
E.E.T. 261—Ultra-High Frequencies and Microwaves	5
E.E.T. 262—Television Circuits	5
E.E.T. 263—Industrial Electronics	5
	17

Engineering Design Technology

Architectural Design Option

First Semester

	Credits
C.E.T. 110—Architectural Design I	3
Math 111—Technical Mathematics I	5
M.E.T. 112—Drafting	3
Phys. 103—Introductory Physics	3
Art or humanistic-social electives	2
	16

Second Semester

	Credits
C.E.T. 112—Architectural Design II	3
C.E.T. 220—Construction and Working Drawings I	3
C.E.T. 225—Architectural Delineations	2
Math 121—Technical Mathematics II	3
Phys. 104—Introductory Physics	3
Science elective	3
	17

Third Semester

	Credits
C.E.T. 214—Architectural Design III	3
C.E.T. 221—Construction and Working Drawings II	3
M.E.T. 224—Statics and Strength of Materials	4
M.E.T. 264—Mechanical Equipment for Buildings	4
Engl. 101—Composition and Rhetoric	3
	17

Fourth Semester

	Credits
C.E.T. 216—Architectural Design IV	3
Engl. 102—Composition and Literature	3
P.Sc. 103—Principles of American Constitutional Government	3
M.E.T. 254—Technical Economics	3
Technical electives	3
	15

Mechanical Design Option

First Semester

	Credits
M.E.T. 112—Drafting	3
Math. 111—Technical Mathematics I	5
Phys. 103—Introductory Physics	3
Engl. 101—Composition and Rhetoric	3
Business or humanistic-social electives	3
	17

Second Semester

	Credits
M.E.T. 123—Technical Drafting	3
Math. 121—Technical Mathematics II	3
Phys. 104—Introductory Physics	3
M.E.T. 255—Properties of Materials	2
Technical electives	5
	16

Third Semester

	Credits
M.E.T. 261—Machine Design and Drafting	3
M.E.T. 264—Mechanical Equipment for Buildings	4
M.E.T. 224—Statics and Strength of Materials	4
Engl. 102—Composition and Literature	3
Science elective	3
	17

Fourth Semester

	Credits
M.E.T. 254—Technical Economics	3
P.Sc. 103—Principles of American Constitutional Government	3
Technical electives	4
Business or humanistic-social electives	5
	15

Public Works Option

First Semester

	Credits
C.E.T. 131—Surveying I	3
Math. 111—Technical Mathematics I	5
M.E.T. 112—Drafting	3
Phys. 103—Introductory Physics	3
Engl. 101—Composition and Rhetoric	3
	17

Second Semester

	Credits
C.E.T. 132—Surveying II	3
Math. 121—Technical Mathematics II	3
Phys. 104—Introductory Physics	3
M.E.T. 123—Technical Drafting	3
Engl. 102—Composition and Literature	3
Technical elective	2
	17

Third Semester

	Credits
C.E.T. 235—Materials Testing I	2
M.E.T. 224—Statics and Strength of Materials	4
P.Sc. 103—Principles of American Constitutional Government	3
Technical electives	3
Science electives	3
	15

Fourth Semester

	Credits
C.E.T. 236—Materials Testing II	2
M.E.T. 254—Technical Economics	3
Technical electives	4
Business or humanistic-social electives	7
	16

Students who transfer from other programs or who enter the engineering technology programs at the beginning of the spring semester are permitted to substitute appropriate course work for a limited number of the courses listed above. Each substitution must be evaluated and approved by the Engineering Technologies Department.

Sarah Hamilton Fleischmann School of Home Economics

PATRICIA A. TRIPPLE, *Dean*

Faculty: Acosta, Amis, Bauer, Essa, Hardy, Healy, Hook, Horn, Jonnson, Kees, Lightner, Margerum, Nakka, Nissen, Nolin, Otto, Read, Stevenson
Adjunct Faculty: Bankofier, Heintz

Objectives

The curriculum in home economics — with its courses in child development, clothing and textiles, consumer education, family economics, foods and nutrition, home management, housing, home furnishings, and family relationships — provides for the achievement of three major objectives. These are to provide outstanding preparation for a professional career in home economics, to help students prepare for responsible leadership and effective participation in home and community life, and to provide general educational opportunities in home economics for all University students.

Degrees Offered

The School of Home Economics offers opportunities for study at three levels:

Associate Degree . . . . Two years
Bachelor of Science Degree . . . . Four years
Master of Science Degree . . . . Graduate study

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 divisions on campus.

Student Participation

Students play an active role in the School of Home Economics. Each class level sends an elected representative to meet with the Associate Dean on a Student Advisory Board. The board is a forum for communication and discussion of the implementation of academic policies. In addition, students are members of all school committees.

Each student, in cooperation with the adviser, plans an individualized baccalaureate program by following a common core and using a total of 49 semester credits to tailor a program consistent with the desired educational objectives.

Requirements for the Two-Year Associate Degree

The two-year Associate Degree programs offered by the School of Home Economics are designed for those students who wish to prepare for technical-level positions and do not seek the baccalaureate degree. The two-year programs include prekindergarten education and fashion trades.

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.

Courses required for one-year certificate (32 credits):

First Year

FIRST SEMESTER

	Credits
Mgr.S. 63—Advertising and Promotion	3
H.Ec. 200—Special Topics	2
H.Ec. 210—Clothing Construction	3
H.Ec. 211—Pattern Design	3
Speech and Theatre	2 or 3
Electives	2 or 3
	15-17

SECOND SEMESTER

	Credits
Acc. 20—Records and Accounts I or Accounting 201 or Home Economics 140	3
H.Ec. 271—Clothing	5
H.Ec. 212—Pattern Alteration	3
H.Ec. 216—Fashion as a Career	2 or 3
H.Ec. 110—Display	3
	16-17

Second Year

FIRST SEMESTER

	Credits
Mgr.S. 64—Salesmanship	3
H.Ec. 373—Seminar in Consumer Competence	1
H.Ec. 316—Advanced Textiles	3
Engl. 101—Composition and Rhetoric	3
U.S. and Nevada constitutions	3
Electives	3
	16

SECOND SEMESTER

	Credits
Mgr.S. 11—Merchandising	3
H.Ec. 18—Field Experience	4
Engl. 102—Composition and Literature	3
Recommended electives	6
	16

Associate of Arts in Prekindergarten Education

One-Year Certificate Program

There are opportunities for employment of one-year 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.

First Year

FIRST SEMESTER

	Credits
H.Ec. 131—CD: Prenatal to Six	3
H.Ec. 132—Guidance Principles in Early Childhood	2
H.Ec. 233—Practicum with Children and Families	2
H.Ec. 237—Understanding Children's Play	2
Psy. 101—General Psychology	3
Electives	4
	16

SECOND SEMESTER

	Credits
H.Ec. 37—The Child and His Food	2
H.Ec. 232—Preschool Programming	2
H.Ec. 233—Practicum with Children and Families	2
H.Ec. 274—The Individual and the Family	5
Sp.Th. 113—Fundamentals of Speech	3
H.Ec. 136—Study of the Individual Child	2
	16

Two-Year Associate Degree Program

The two-year graduate may be employed as a teacher or curriculum consultant in private and cooperative nursery schools, day care centers, Head 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 first year:

	Credits
H.Ec. 231—CD: Six through Adolescence	3
H.Ec. 233—Practicum with Children and Families	3
H.Ec. 276—Seminar in Family Health	1
Engl. 101—Composition and Rhetoric	3
U.S. and Nevada constitutions	3
H.Ec. 201—Family and Community Health	2
H.Ec. 233—Practicum with Children and Families	3
H.Ec. 376—Seminar in Family Functioning	2
Engl. 102—Composition and Literature	3
Electives	9
	32

Requirements for the Baccalaureate Degree

Students in home economics follow a core program and, in addition, select a major field for concentrated study. The core program combines home economics courses with courses in English, economics, chemistry, psychology, sociology, and art to give a balance of cultural, technical, and professional education. The major program is designed to provide additional professional education, combining special interest courses in home economics with those in related areas.

The Bachelor of Science in Home Economics degree requires 128 credits. Of the total credits presented for graduation, a minimum of 40 credits must be in courses numbered 300 and above. Every candidate is expected to meet all general University requirements for graduation. In addition to the core courses, each student must plan an individualized program directed toward a specific professional goal.

The major program is an individualized program which 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 of the School of Home Economics, and the student are the members of the review committee. If at a later time it is deemed desirable to change the program plan, the student initiates in writing the change and secures the concurrence of the academic adviser and Dean.

A student majoring in the School of Home Economics may earn a maximum of 30 semester credits with S/U grades. The courses may be re-

quired or elective; they may be taken at this institution or transferred in. If a student transferring in to the School of Home Economics has earned more than 30 credits graded on an S/U basis, the case is considered on an individual basis.

Core Requirements

Humanities ..... Minimum of 12 credits	
Courses in English, art, and speech are required.	
Social science ..... Minimum of 12 credits	
Courses in psychology, economics, and sociology are required.	
Natural science ..... Minimum of 12 credits	
Must include inorganic and organic chemistry.	
U.S. and Nevada constitutions	
Home economics ..... Minimum of 43 credits	
H.Ec. 171—Perspective in Home Economics	4
H.Ec. 172—Food and Man	4
H.Ec. 271—Clothing	5
H.Ec. 273—Shelter and Environment	4
H.Ec. 274—The Individual and the Family	5
H.Ec. 276—Seminar in Family Health	1
H.Ec. 371—Family Economics and Management ...	4
H.Ec. 373—Seminar in Consumer Competence	1
H.Ec. 374—Communications in Home Economics .	3
H.Ec. 376—Seminar in Family Functioning	2
H.Ec. 470—Field Experience	8
H.Ec. 475—Professional Philosophies and Issues ...	2

Child Development and Family Life

The graduate in this field is prepared for a rewarding career as well as personal satisfaction in working with children and families through government and private agencies such as Head Start, child care and development 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, an individual program may be designed to qualify the graduate for an elementary teaching certificate.

Fashion Merchandising

Various career opportunities are available to the graduate in this field, such as fashion consultant, buyer, fashion coordinator, researcher in market trends, and in self-employment (boutique and specialty shops, apparel design), sales promotion, and adult education.

The inclusion of business courses in the individualized program prepares the student for retail merchandising and department management.

Food and Nutrition

A student's program may be oriented toward a career in foods and/or nutrition for employment in areas such as dietetics, food service, public and/or family nutrition education, and public health nutrition. Positions are available in industry with food production and advertising firms in the areas of public relations, mass media, consumer product acceptance, and recipe testing.

Those who wish to meet the academic requirements of the American Dietetic Association for a postgraduate dietetic internship may do so by careful use of individualized program credits.

Home Economics in Business

An individualized program is developed to prepare the candidate for any one of a number of positions in such fields as advertising, equipment, food processing and distribution, as well as preparation and development of new food products; home service, public relations, and radio and television work. Many home economists are employed by utility companies as an important member of the company team in public relations, sales, and advertising work.

Home Economics Education

This program qualifies a person for secondary and vocational teaching certificate if it includes Home Economics 347, 449, and 457 (which substitutes for Home Economics 470), Education 210, Psychology 231, or Counseling and Guidance Personnel Services 300 and 400 in addition to home economics subject matter competency. To qualify for junior high school teaching, a minor must be developed in addition to required courses for a major in home economics education.

Home Economics Extension

Persons desiring to qualify for extension work in home economics must meet requirements for home economics education, except Home Economics 470 replaces 457.

Home Economics Communications

To prepare as a home economist for newspaper, magazine, and for radio and television work an individualized program should include courses in journalism, speech and theatre, and English as well as home economics.

Shelter and Environment

In preparation for employment in areas demanding a knowledge of the social, political, economic, and aesthetic aspects of housing and the near envi-

ronment, a program should include courses in psychology, sociology, art, and urban and regional planning in addition to home economics.

By careful selection of courses in art, home economics, and business an option in interior design may be developed.

Minor in Home Economics

The minor provides a general program in home economics which, when combined with Home Economics 347, enables an education major to teach home economics in a nonvocational program. Requirements: Any four of the following courses: Home Economics 172, 271, 273, 274, 371, and additional home economics credits to total a minimum of 24 credits.

Graduate Study

A candidate for a Master of Science degree may select to follow either Plan A or Plan B. Course work must include Home Economics 990 and 991. Areas which may serve, singly or in combination, as a focus for the Master's degree program include child development, family life, clothing and textiles, home economics education, shelter and environment, and human nutrition.

If the candidate selects Plan A, 24 credits in graduate course work and 6 credits of research for the thesis are required.

If the candidate selects Plan B, 32 graduate credits are required. A minimum of 15 credits must be in courses numbered 900 or above. As a part of the minimum requirements, a professional problem resulting in a professional paper must be completed. For admittance to Plan B a candidate must have a minimum of two years of professional experience in home economics or an allied field.

The University of Nevada cooperates in the interinstitutional Doctoral Program in Home Economics. Under this program, students interested in pursuing a doctoral program not offered in subject matter fields of home economics at the University of Nevada but by another participating institution, may enroll in a joint interinstitutional degree program.

Suggested Areas of Concentration for Majors Outside of Home Economics

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:

	Credits
H.Ec. 121—Human Nutrition	3
H.Ec. 131—Child Development: Prenatal to Six	3 or 4
H.Ec. 201—Family and Community Health	2
H.Ec. 231—Child Development: Six Through Adolescence	3 or 4
H.Ec. 233—Practicum with Children and Families	2 to 4
H.Ec. 237—Understanding Children's Play	2
H.Ec. 274—The Individual and the Family	3 or 5
H.Ec. 430—Human Sexuality	3
H.Ec. 431—Middle and Later Life	2 or 3
H.Ec. 434—Parent Education in Family Life	3
H.Ec. 435—Readings in Child Development and Family Relationships	2
H.Ec. 439—Preschool Programs	3

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.

	Credits
Group I:	
H.Ec. 210—Clothing Construction	3
H.Ec. 271—Clothing	5
Group II:	
H.Ec. 121—Human Nutrition	3
H.Ec. 122—Creative Foods	2
H.Ec. 172—Food and Man	4
Group III:	
H.Ec. 273—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	3 or 5
H.Ec. 431—Middle and Later Life	2 or 3
Group V:	
H.Ec. 140—Family Management Problems	2
H.Ec. 371—Family Economics and Management	4

School of Medical Sciences

GEORGE T. SMITH, *Dean*

The School of Medical Sciences was established by an Act of the State Legislature on March 25, 1969, and is the newest major unit of the University of Nevada, Reno. Baccalaureate degree programs are offered in medical technology, predentistry, and premedicine. In addition, a two-year program of medical student education which does not grant a terminal M.D. degree is offered. Upon successful completion of the medical sciences curriculum, students are qualified to transfer to other medical schools where they may complete the clinical training necessary for the M.D. degree.

Biomedical Sciences

Faculty: Acosta, Bach (Director), B. Brown, R. Brown, Ciofalo, Cramer, Durham, Fogel, Haber, Heisler, Kozel, Lewis, Licata, Lupan, McNeil, Mead, Merritt, Pardini, Rivers, Schneider, Smith, Standish, Tibbitts, Van Remoortere, Welch

Behavioral Sciences

Faculty: Altrocchi, D. Baldwin, Carducci, Ginsburg, Hudspeth, Kal, McReynolds, Mikawa, Miller, Nims, Peterson, Varble

Clinical Sciences

Faculty: Edmiston, Peck, Scully (Director)
Clinical Faculty: Anderson, Baggett, Barnes, Barnet, Berger, Black, Botsford, Boyden, Brady, Brophy, Broadbent, Callister, Carlson, Cavelle, Coppola, Curry, Dales, Day, Decker, Dow, C. Emery, Ervin, Felder, Feltner, Fleming, Gainey, Gilmore, Guisto, T. Hall, W. Hall, Higgs, Hunneycutt, Inskip, Johnson, Jones, Jorna, Kavanagh, Knauf, Laubscher, Learey, Lieb, Mack, Marshall, Megquier, Miercort, Miles, Mohler, Molde, Moore, Mousel, Myles, Nitz, Nunez, Olsen, Papp, Peterman, Peterson, Postman, Prentice, Proctor, Reinkemeyer, D. Roberts, F. Roberts, Rosenauer, Rowe, Sage, Salvadorini, Sandars, Sande, Schonder, Schultz, Shonnard, Simon, Sohn, Stapleton, Stephens, Stewart, Svare, Tappan, Teipner, Tenney, Thompson, Watson, Win, Woodbridge, Zebrack

Educational Support and Communications

Faculty: Bride, Oppleman (Director), Tone

Speech Pathology and Audiology

Faculty: Jordan, Knauf, Weiss (Director), Zimmerman
Clinical Faculty: Anderson, Bokelmann, Chester, Costa

Objectives

The aim of the School of Medical Sciences is to provide leadership in the education and training of health professionals at all levels in the State of Nevada. The purpose achieved contributes substantially to meeting growing needs relative to maintenance of health, prevention of sickness, treatment of the ill, and rehabilitation of the treated in this State. The principle means by which the School of Medical Sciences provides this contribution are through its inclusion in the comprehensive Health Sciences Program of the University and its specific programs of training for predental, premedical, and prepharmacy students as well as those in medicine and medical technology. The particular features common to these programs include shortening and enrichment of the time necessary to complete professional training, an interdisciplinary approach, self-directed learning and individualized rates of progress, a common core curriculum, development of the health team concept, extensive use of community resources, early introduction to the patient, and close collaboration in planning, teaching, and evaluation by clinical and basic science faculty of the School of Medical Sciences.

The program of the school provides the most effective opportunity for students of medicine to prepare for the clinical training leading to the M.D. degree. This preparation includes an understanding of and an ability to utilize confidently the traditional sciences basic to clinical medicine such as anatomy, physiology, biochemistry, pharmacology, microbiology, pathology, and biomedical engineering as well as other more specialized basic sciences. Concurrently, learning is provided in the newly emerging basic science field of behavioral science which is concerned with the psychological, social, and economic aspects of medicine, including the patient-doctor relationship. The third major area of training is in clinical science where the basic principles of physical and laboratory diagnosis and history taking are emphasized in a correlative fashion; opportunities for clinical preceptorships are also provided.

Certain unique features of the organization of the School of Medical Sciences are worth mentioning. These include the fact that planning and advisement for premedical, prepharmacy, and predentistry students is provided by the school as is the conduct of the entire program for medical technology. The school works closely with the Orvis School of Nurs-

ing and with the joint program in the health sciences to provide teaching to nursing students and students in prephysical therapy and health education programs. The purpose of this arrangement is to provide the highest degree of coordination of training and learning among medical students and all other students training for the health professions to best equip them for their roles as members of the health team.

Two-Year Medical Sciences Program

Students are selected for admission as medical students upon formal application to and approval by the Student Affairs Committee. Medical students must demonstrate competence in the required subject areas and Medical College Admission Test. In addition, at least two years of college are required for admission. Candidates are evaluated on the basis of academic performance, performance on the Medical College Admissions Test, the nature and depth of scholarly and extracurricular activities during college years, academic letters of evaluation, and personal interviews. Successful completion of the curriculum qualifies the student for transfer to medical schools providing clinical training required for the terminal M.D. degree.

The medical sciences curriculum features early introduction to patients and their medical problems; extensive use of clinical problems as an introduction to the problem-solving approach in biomedical science; complete integration of biomedical sciences in learning experiences by which each body system is considered from the point of view of salient distinctions between health and the most common and important diseases affecting each system; a closely coordinated approach between biomedical sciences and clinical sciences to provide for cumulative experience in diagnosis and history taking, basic therapeutic rationales, and preventive measures indicated for each major system disease. Close coordination with these two areas and behavioral science is provided for further insight into social and personal factors which influence health and disease and the role of the doctor-patient relationship affecting diagnosis and treatment. Educational support resources and full student participation provide a maximum degree of curriculum design and evaluation, an emphasis on performance objectives, self-learning techniques, and individualized rates of learning and achievement. It is anticipated that these features enrich medical student traiing and will result in students better prepared to enter their clinical training than is the case with traditional programs.

For further information contact Dean George T. Smith, or Dr. Owen C. Peck, Director of Student Affairs.

Medical Sciences Curriculum

First Year

First Semester	Credits
Med.S. 401—Professional Introduction and Orientation to Medicine	0
Med.S. 411—Cell Biology in Health and Disease	7
Med.S. 413—Tissue Biology in Health and Disease	2
Med.S. 415—Hematopoietic System	4
Med.S. 420—Pathobiology	7
Med.S. 460—Behavioral Science	3
	23

Second Semester	Credits
Med.S. 434—Cardiac System	5
Med.S. 435—Vascular System	3
Med.S. 437—Respiratory System	6
Med.S. 461—Human Behavior	7
Med.S. 471—Clinical Science	1
	22

Second Year

First Semester	Credits
Med.S. 403—Advance Professional Orientation to Medicine	0
Med.S. 439—Gastrointestinal System and Abdomen	8
Med.S. 441—Renal System and Lower Urinary Tract	4
Med.S. 442—Head, Neck and Special Senses	4
Med.S. 463—Advanced Behavioral Science	3
Med.S. 473—Advanced Clinical Science	1
	20

Second Semester	Credits
Med.S. 430—Integumentary System	2
Med.S. 432—Musculoskeletal System	3
Med.S. 444—Central Nervous System	7
Med.S. 446—Endocrinology	3
Med.S. 448—Reproductive System	4
Med.S. 450—Intersystem Biology in Health and Disease	3
Med.S. 464—Advanced Behavioral Science	3
Med.S. 474—Advanced Clinical Science	1
	21

Baccalaureate Degree Program

A Bachelor of Science degree may be earned by those students interested in premedicine, predentistry, and medical technology by completing:

1. A total of 128 credits in required and elective courses, including satisfactory completion of the military science requirement. Of the 128 credits, no more than 8 credits of combined courses in 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 U.S. and Nevada constitutions.
4. The general University requirements regarding minimum grade-point average 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.

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 concurrently providing a background in those academic areas required for admission to professional school.

Students who elect to register as premedical or predental majors must satisfy Group I, II, and III requirements while fulfilling the Bachelor of Science requirements noted above.

Curriculum

Group I—Basic Science and University Requirements

	Credits
Chemistry ..... Either Chemistry 171-172, Biochemistry 271-272, or Chemistry 101-102, Chemistry 243-244-245-246	16
Biology ..... Biology 101, 201, and 8 elective credits	15
English ..... English 101-102	6
Mathematics ..... Mathematics 110	3
Physics ..... Phys. 151-152, 153-154	8
Behavioral Science ..... 3 credits elective, 3 credits elective in developmental psychology, and Psychology 411	9
U.S. and Nevada constitutions ..... Either Political Science 103 or History 111	3
	60

Group II—Health Science Core

Provides an opportunity for the student to experience an interdisciplinary sequence of courses which relate directly with health care problems and solutions.

	Credits
Health Sciences 101, 104, 282, 283, 380, 381, 480, 481	24

Group III—Area of Concentration

Prior to the beginning of the junior year, each student, in consultation with his adviser, must submit to the Office of Undergraduate Student Affairs, Room 220, Mackay Science, a written notice selecting an area of concentration. The minimum number of credits in this group is 24.

For further information, contact Dr. Roger Lewis, Director of Undergraduate Student Affairs, Room 220, Mackay Science.

Prepharmacy

The prepharmacy program consists of a two-year curriculum which satisfies the preprofessional requirements of pharmacy schools and which prepares the student for transfer to another university which offers professional training in pharmacy. The curriculum includes courses in chemistry, English, biology, mathematics, physics and electives, i.e., psychology, sociology, etc. Students interested in preparing for a professional career in pharmacy should consult with Dr. E. Van Remoortere.

Medical Technology

The medical technology curriculum is designed to give the student a broad background in physical, chemical, and biological concepts needed to acquire the knowledge and skills necessary to perform basic and specialized procedures in the clinical laboratory. Emphasis is placed on the role of the medical technologist in modern health care delivery. Students are also encouraged to enroll in core courses of the health sciences program which prepare them to function effectively as members of interdisciplinary health teams.

Structured clinical courses are introduced in the sophomore year, and continue through the junior and senior years. Satisfactory completion of the clinical courses is required prior to enrollment in the clinical internship during the senior year. Students are enrolled at the University for one semester during the six-month internship at affiliated hospitals in the state.

Students who satisfactorily complete the program and obtain a baccalaureate degree from the University are eligible to take the medical technologist certification examination given by the Registry of Medical Technologists of the American Society of Clinical Pathologists.

Specific information concerning the medical technology curriculum is available from the director of the program or the Curriculum Coordinator, School of Medical Sciences.

Curriculum

Required General Courses	*Credits*
English 101, 102	6
Political Science 103 or History 111	3
Mathematics	3
Biology	16
Chemistry	16
Biochemistry	4-8
Physics	4-6
Required Clinical Courses	
Med.S. 105—Clinical Microscopy	3
Med.S. 303—Hematology	4
Med.S. 304—Immunohematology	3
Med.S. 306—Clinical Microbiology I	4
Med.S. 307—Clinical Microbiology II	4
Med.S. 309—Laboratory Mathematics	2
Med.S. 409—Clinical Chemistry	4
Med.S. 422-425—Medical Technology Internship	16

Speech Pathology and Audiology

Master's Degree Program

General Requirements for Admission

This 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 or audiology, subject to the approval of the department, prior to admission to graduate standing.

Program Completion Requirements

The academic requirements may be satisfied generally in accordance with the residence and credit requirements of the Graduate School. Specifically, two options are available for degree students. Option A requires a minimum of 30 credits with thesis; Option B requires a minimum of 32 credits without thesis. A student who shows unusual ability or who intends to continue working toward the doctorate degree is encouraged to pursue Option A.

Course Work

The course work in speech pathology and audiology is designed as a field of concentration program. An advisory committee with a chairman guides the student in the development of an appropriate curriculum to meet the academic and professional requirements.

A minimum of 30 or 32 semester credits (depending whether Option A or B is selected) must be acceptable at the University of Nevada at the graduate level. Of these, 18 must be in courses numbered 900 or above.

A student choosing the 30-credit thesis option is required to complete a minimum of 24 credits of courses and 6 credits of thesis. An oral examination involving the thesis and background shall be given.

For a student choosing the nonthesis option, 32 credits of course work are required. A comprehensive written examination covering the normal speech and hearing processes, pathologies, and clinical procedures is given each student early in the last semester of course work. A student leaving this program with a master's degree should plan to acquire the background necessary to pass the national examination to be recognized as a competent clinician by the American Speech and Hearing Association.

Required courses are Speech Pathology and Audiology 665, 762, 920, 921, 951, 952, and 967.

Undergraduate Option

An undergraduate option in speech pathology and audiology is available in the Speech and Theatre Department in the College of Arts and Science.

Mackay School of Mines

ARTHUR BAKER III, *Dean*

Departments of Instruction: Chemical and Metallurgical Engineering, Geology-Geography, 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 with knowledge necessary to successfully compete 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 Mackay School of Mines 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 diversity in fields of instruction, large number of part-time and permanent jobs, availability of modern and sophisticated equipment, and extent of library resources in the Mackay School of Mines Library are augmented by many research and mineral industry organizations in Reno. The Nevada Bureau of Mines and Geology and the Nevada Mining Analytical Laboratory are the research and public service divisions of the Mackay School of Mines, and share facilities in the same building complex. The high quality of the teaching staff and laboratory facilities is due in part to coordination with the staff of the Center for Water Resources Research and cooperation with the U.S. Bureau of Mines, both of which have large research centers on the campus. Close contact is also maintained with other related state and federal agencies as well as over sixty geological, exploration, engineering, metallurgical, mining, and petroleum companies having offices in the Reno area.

Degrees

The student is permitted to graduate in any of the curricula offered by the Mackay School of Mines as listed at the time of his entrance or at the time of his graduation. The student's choice of electives must meet the approval of his department and, in general, electives should be chosen to broaden his education in humanities and social studies or fields of study related to his major subject rather than to increase his specialization in it.

A baccalaureate student enrolled in the Mackay School of Mines may earn and apply a maximum of 30 credits of S/U grades only in social studies, humanities, or nontechnical electives. 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 Mackay School of Mines, through its departments of Chemical and Metallurgical Engineering, Geology-Geography, and Mining Engineering, offers study programs which enable the student to earn the following degrees:

Bachelor of Science

Chemical Engineering
Earth Science
Geography
Geology
Geological Engineering
Geophysics
Mining Engineering
Metallurgical Engineering

Master of Science

Geochemistry
Geology
Geological Engineering
Geophysics
Hydrology and Hydrogeology
Mining Engineering
Metallurgical Engineering

Doctor of Philosophy

Geochemistry
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

Faculty: Akhtar, Bowdish, Hendrix, Miller, Smith (Chairman), Winston

Baccalaureate Degrees

Chemical Engineering

Freshman Year

FIRST SEMESTER

	Credits
Chem. 103—General Chemistry[1]	4
Ch.E. 101—Industry Orientation Lectures	1
E.E. 131—Computer Techniques I[2]	1
Engl. 101—Composition and Rhetoric	3
Math. 181—Calculus I	4
P.Sc. 103—Principles of American Constitutional Government	3
	16

SECOND SEMESTER

	Credits
Ch.E. 102—Introduction to Metallurgical and Chemical Processing	2
Chem. 104—General Chemistry[3]	4
E.E. 132—Computer Techniques II	1
Engl. 102—Composition and Literature	3
Math. 182—Calculus II	4
Phys. 208—Engineering Physics I	4
	18

Sophomore Year

FIRST SEMESTER

	Credits
Ch.E. 232—Principles of Metallurgical and Chemical Engineering	3
Chem. 243—Organic Chemistry	3
Ec. 201—Principles of Economics	3
E.E. 231—Computer Applications I[2]	1
Math. 281—Calculus III	4
Phys. 209—Engineering Physics II	3
	17

SECOND SEMESTER

	Credits
Ch.E. 303—Chemical Pollution Abatement	3
Math. 221—Differential Equations	2
M.E. 241—Analytic Mechanics for Engineers	3
Phys. 210—Engineering Physics III	3
Social studies or humanities[4]	6
	17

[1]Students not qualified for Chem. 103 may substitute Chem. 101.
[2]Equivalent course(s) in computer techniques may be substituted.
[3]Students not qualified for Chem. 104 may substitute Chem. 102.
[4]These subjects must be chosen from: "College of Arts and Science, Requirements for a Baccalaureate Degree. (Prescribed Courses Item 4: Group II Social Sciences or Group III Humanities.)"

Junior Year

FIRST SEMESTER

	Credits
Ch.E. 437—Unit Operations I	4
Chem. 330—Analytical Chemistry	4
Chem. 353—Physical Chemistry	3
Chem. 355—Physical Chemistry Lab	2
Social studies or humanities[4]	3
	16

SECOND SEMESTER

	Credits
Ch.E. 301—Chemical or Metallurgical Industry Report	1
Ch.E. 438—Unit Operations II	3
Ch.E. 442—Unit Operations Lab	2
Chem. 334—Instrumental Analysis	3
Chem. 354—Physical Chemistry	3
C.E. 372—Strength of Materials	3
	15

Senior Year

FIRST SEMESTER

	Credits
Ch.E. 361—Thermodynamics	4
Ch.E. 471—Transport Operation	3
M.E. 342—Analytic Mechanics for Engineers	3
Social studies or humanities[4]	3
Technical electives[5]	4
	17

SECOND SEMESTER

	Credits
Ch.E. 440—Kinetics and Catalysis	2
Ch.E. 482—Chemical Engineering Design	3
Met.E. 350—Elements of Materials Science	4
Technical electives[5]	9
	18

Total credits required, 134. Military science courses numbered below 300 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, mineral dressing, physical metallurgy, and materials science 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 from the approved list or others as approved by the department chairman. A total of 30 credits are required in metallurgical engineering courses or related technical electives.

[5]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.

Freshman Year

FIRST SEMESTER

	Credits
Chem. 103—General Chemistry[6]	4
Engl. 101—Composition and Rhetoric	3
Math. 181—Calculus I	4
Met.E. 101—Industry Orientation Lectures	1
Min.E. 213—Computer Programming[7]	2
P.Sc. 103—Principles of American Constitutional Government	3
	17

SECOND SEMESTER

	Credits
Chem. 104—General Chemistry[8]	4
Engl. 102—Composition and Literature	3
Math. 182—Calculus II	4
Met.E. 102—Introduction to Metallurgical and Chemical Processes	2
Phys. 208—Engineering Physics I	4
	17

Sophomore Year

FIRST SEMESTER

	Credits
Ec. 201—Principles of Economics	3
Geol. 211—Mineralogy	3
Math. 281—Calculus III	3
Met.E. 232—Principles of Metallurgical and Chemical Engineering	4
Phys. 209—Engineering Physics II	3
	16

SECOND SEMESTER

	Credits
Ch. E. 303—Chemical Pollution Abatement	3
Math. 220—Probability and Statistics[9]	3
Math. 221—Differential Equations	2
M.E. 241—Analytic Mechanics for Engineers	3
Phys. 210—Engineering Physics III	3
Social studies or humanities[10]	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
	15

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[10]	3
	17

[6]See footnote 1.
[7]See footnote 2.
[8]See footnote 3.
[9]Equivalent statistics course may be substituted.
[10]See footnote 4.

Senior Year

FIRST SEMESTER

	Credits
Ch.E. 471—Transport Operations	3
E.E. 311—Network Theory I	4
Met.E. 451—Physical Metallurgy	3
Technical electives[11]	7
	17

SECOND SEMESTER

	Credits
Phys. 372—Atomic and Nuclear Physics	3
Social studies or humanities[10]	6
Technical electives[11]	9
	18

Total credits required, 134. Military science courses numbered below 300 and physical education courses do not apply to this total.

Advanced Degrees

The Department of Chemical and Metallurgical Engineering offers individual programs leading to the degree of Master of Science in metallurgy and in metallurgical engineering in the fields of extractive or chemical metallurgy, mineral dressing, physical metallurgy, and materials science. The general University requirements for these advanced degrees are listed in the Graduate School section. Both Plan A, which includes at least 6 credits in thesis work, and Plan B, which does not have a thesis requirement, are offered.

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 Examinaton 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.

The department has several graduate fellowships, research assistantships, and teaching assis-

[11]See footnote 5.

tantships. 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.

Geology-Geography

Faculty: Baker, Cochran, Cooley, Erwin, Fenski, Firby, Hibbard (Chairman), Hoffer, Houghton, Hsu, Humphrey, Kersten, Kramer, Larson, Lintz, Lutsey, Maxey, Melhorn (Adjunct), Payne, Ryall, Slemmons, Wheeler

Baccalaureate Degrees

The curricula leading to the degree of Bachelor of Science include earth science, geography, geology, geological engineering, and geophysics.

Earth Science

The earth science curriculum gives a basic background in the earth sciences. By choosing designated courses in education the student can prepare for a career in secondary education. An emphasis on environmental aspects can be achieved by selection of appropriate electives.

Recommended Freshman Year

FIRST SEMESTER

	Credits
Engl. 101—Composition and Rhetoric	3
Foreign language[12] (Option I, 103 and 105 or Option II, 103)	5-3
Geol. 101—Physical Geology	4
Math. 102—Plane Trigonometry	2
Math 110—College Algebra	3
	17-15

SECOND SEMESTER

	Credits
Foreign language[12] (Option I, 104 and 106 or Option II, 104)	5-3
Geog. 103—Physical Geography	4
Geol. 102—Historical Geology	4
Math. 160—Calculus and Matrices	3
Elective[13]	1
	17-15

Recommended Sophomore Year

FIRST SEMESTER

	Credits
Chem. 101—General Chemistry	4
Foreign language[12] (Option I, 203 or Option II, 205)	3-2
Geol. 211—Mineralogy	3
Phys. 151—General Physics	3
Phys. 153—General Physics Laboratory	1
Elective[13]	3
	17-16

SECOND SEMESTER

	Credits
Chem. 102—General Chemistry	4
Engl. 102—Composition and Literature	3
Foreign language[12] (Option I, 204 or Option II, 207)	3-2
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
	17-16

Recommended Junior Year

FIRST SEMESTER

	Credits
Foreign language (Option II, 209)	0-2
Geog. 322—Climatology	3
Geol. 160—General Paleontology (or Geol. 461, 4 credits)	3
Geol. 332—Structural Geology	4
Elective[13]	5
	15-17

SECOND SEMESTER

	Credits
Geog. 331—Landforms (or Geol. 341)	3
Geog. 335—Conservation of Natural Resources	3
Statistics course	2-3
Electives[13]	8
	16-17

Recommended Senior Year

FIRST SEMESTER

	Credits
Electives[13]	14-16

SECOND SEMESTER

	Credits
Electives[13]	13-15

Total credits required, 128 including satisfactory completion of the military science requirement.

Geography

The geography undergraduate curriculum, leading to the Bachelor of Science Geography degree, is designed to serve both as a core program within a broad liberal studies interest as well as a beginning direction to certain specific professional fields. As part of a liberal studies program, geography presents a holistic (unifying) view of man and his world with ample opportunity to broaden intellectual vis-

[12]*Foreign Language:* This requirement may be satisfied by two years in college of English, French, German, Spanish, or Russian in addition to his 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.

[13]*Electives:* For students seeking teaching certification, consult College of Education for prescribed courses. The 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, Environment 101; Biology 103 (or Biology 101); Geography 232, 431; Chemical Engineering 302; Plant, Soil and Water Science 441; Mining Engineering 454; and Geology 480 are strongly recommended, with additional technical electives to be selected in consultation with the adviser.

ion in many disciplines represented at the University. As a preprofessional curriculum, geography offers three concentrations or options: a physical-environmental option, an urban studies option, and a cultural-international relations option.

The core courses for all geography majors are listed below. Courses associated with the three options are to be selected in consultation with the adviser.

Courses Required of All Majors in Geography

Courses	*Credits*
Geography 103, 196, 109-110, 212, 314, 322, 418, one regional course	27
Economics 201-202	6
Chemistry 101, Mathematics 102, 110	10
Statistical methods	3 or 4
Foreign Language: Option I 103, 104, 105-106, 203-204 or Option II 103-104, 205, 207	16 or 10*

*This requirement may be satisfied (1) by demonstrating a satisfactory reading knowledge of any language other than the student's native tongue by appropriate examination, or (2) for students who have completed two or more years of a foreign language in high school, by completing one year of a different foreign language at the university level.

Total credits required, 128 including satisfactory completion of military science requirement.

Because of the necessity of tailoring specific programs to the student's needs and desires, close contact between the student and his 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.

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.

The geological engineering curriculum is for students who wish a strong quantitative background for applications in engineering geology, hydrology, environmental geology, and economic geology.

Freshman Year

FIRST SEMESTER

	Credits
Chem. 101—General Chemistry[14] (or Chem. 103)	4
Engl. 101—Composition and Rhetoric	3
Foreign language[15] (Option I, 103 and 105 or Option II, 103)	5-3
Geol. 101—Physical Geology	4
	16-14

SECOND SEMESTER

	Credits
Chem. 102—General Chemistry[16] (or Chem. 104)	4
Engl. 102—Composition and Literature	3
Foreign language[15] (Option I, 104 and 106, or Option II, 104)	5-3
Geol. 102—Historical Geology	4
	16-14

Sophomore Year

FIRST SEMESTER

	Credits
Foreign language[17] (Option I, 203 or Option II, 205)	3-2
Geol. 211—Mineralogy	3
Math. 181—Calculus I	4
Phys. 151—General Physics	3
Phys. 153—General Physics Laboratory	1
Computer course	2-3
	15-17

SECOND SEMESTER

	Credits
Foreign language[17] (Option I, 204 or Option II, 207)	3-2
Geology 212—Mineralogy and Lithology	3
Geology elective	2-3
Math. 182—Calculus II	4
Phys. 152—General Physics	3
Phys. 154—General Physics Laboratory	1
	15-17

Junior Year

FIRST SEMESTER

	Credits
Foreign language[18] (Option II, 209)	0-2
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[19]	5
	15-17

SECOND SEMESTER

	Credits
Ec. 201—Principles of Economics I (or Ec. 202)	3
Geol. 450—Field Methods	1
Geol. 469—Stratigraphy and Sedimentation	3
Statistics course	2-3
Social studies or humanities[19]	3
Electives	3
	15-16

Summer Camp

Geol. 451—Summer Field Geology—(6 credits)

Senior Year

FIRST SEMESTER

	Credits
Geol. 425—Optical Mineralogy	4
Geol. 461—Invertebrate Paleontology	4
Electives	9
	17

[14]See footnote 1.
[15]See footnote 12.
[16]See footnote 3.
[17]See footnote 12.
[18]See footnote 12.
[19]See footnote 4.

SECOND SEMESTER

	Credits
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 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 for those students primarily interested in the geological aspects of constrction, design, urban planning, and environmental planning.

Freshman Year

FIRST SEMESTER

	Credits
Chem. 101—General Chemistry	4
Engl. 101—Composition and Rhetoric	3
Geol. 101—Physical Geology	4
Math. 181—Calculus I	4
	15

SECOND SEMESTER

	Credits
Chem. 102—General Chemistry	4
Engl. 102—Composition and Literature	3
Math. 182—Calculus II	4
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Laboratory I	1
	15

Sophomore Year

FIRST SEMESTER

	Credits
Geol. 102—Historical Geology	4
Geol. 211—Mineralogy	3
Math. 281—Calculus III	4
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Laboratory II	1
P.Sc. 103—Principles of American Constitutional Government	3
	18

SECOND SEMESTER

	Credits
C.E. 246—Construction Materials	3
Ec. 201—Principles of Economics (or Economics 202)	3
Geol. 212—Mineralogy and Lithology	3
Math. 221—Differential Equations	2
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Laboratory III	1
A computer course (Mining Engineering 213 suggested)	1 or 2
	16-17

Junior Year

FIRST SEMESTER

	Credits
C.E. 369—Nonmetallic Testing Laboratory	1
Eng. 201—Engineering Communications	3
Geol. 332—Structural Geology	4
Geol. 341—Geomorphology	3
M.E. 241—Analytic Mechanics for Engineers	3
	14

SECOND SEMESTER

	Credits
C.E. 367—Elementary Fluid Mechanics	3
C.E. 372—Strength of Materials	3
Geol. 450—Field Methods	1
Geol. 469—Stratigraphy and Sedimentation	3
Geol. 483—Engineering Geology	3
Social studies or humanities	3
	16

Summer Camp

Geol. 451—Summer Field Geology—(6 credits)

Senior Year

FIRST SEMESTER

	Credits
C.E. 492—Soil Mechanics	3
Geol. 415—Geological Thermodynamics (or Chemical Engineering 361)	3 or 4
Geol. 425—Optical Mineralogy	4
Geol. 446—Photogeology-Photogrammetry	3
Social studies or humanities[20]	3
	16-17

SECOND SEMESTER

	Credits
Geol. 484—Ground Water	3
Geol. 492—Geophysical Exploration	3
Social studies or humanities[20]	6
Technical electives[21]	5
	17

Total credits required, 134. Military science courses numbered below 300 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.

[20] See footnote 4.

[21] Technical electives may be selected from the following list:
Civil Engineering: 364, 368, 373, 374, 388
Geology: 479, 480
Mining Engineering: 443 or 448
A statistics course (e.g., Mining Engineering 316)
A course in quality of water
A course in water rights

Freshman Year

FIRST SEMESTER

	Credits
Chem. 101—General Chemistry[22] (or Chemistry 103)	4
Engl. 101—Composition and Rhetoric	3
Geol. 101—Physical Geology	4
Math. 181—Calculus I	4
	15

SECOND SEMESTER

	Credits
Chem. 102—General Chemistry[23] (or Chemistry 104)	4
Geol. 102—Historical Geology	4
Math. 182—Calculus II	4
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Laboratory I	1
	16

Sophomore Year

FIRST SEMESTER

	Credits
Engl. 102—Composition and Literature	3
Geol. 211—Mineralogy	3
Math. 281—Calculus III	4
Min.E. 213—Computer Programming	2
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Laboratory II	1
	16

SECOND SEMESTER

	Credits
Ec. 201—Principles of Economics I[24] (or Math. 220—Introduction to Probability and Statistics)	3
Geol. 212—Mineralogy and Lithology	3
Math. 221—Differential Equations	2
Phys. 203—Engineering Physics III	3
P.Sc. 103—Principles of American Constitutional Government	3
Phys. 206—Engineering Physics Laboratory III	1
	15

Junior Year

FIRST SEMESTER

	Credits
Geol. 332—Structural Geology	4
M.E. 400—Advanced Engineering Mathematics[25] (or Math 311—Advanced Calculus)	2
Phys. 351—Mechanics	3
Phys. 355—Physical Electronics	3
Social studies or humanities[26]	3
Technical elective[27]	3
	18

SECOND SEMESTER

	Credits
Geol. 450—Field Methods	1
Geol. 490—General Geophysics	2
Geol. 492—Geophysical Exploration	3
Phys. 352—Mechanics	2
Phys. 356—Electrical Measurements	2
Social studies or humanities[26]	3
Technical elective[27]	4
	17

Summer Camp

Geol. 451—Summer Field Geology—(3 or 6 credits)

Senior Year

FIRST SEMESTER

	Credits
Geology elective[28]	3
Geol. 493—Elementary Seismology	3
Phys. 473—Electricity and Magnetism	3
Social studies or humanities[29]	3
Technical elective[30]	3
	15

SECOND SEMESTER

	Credits
Geology elective[28]	3
Geol. 494—Geophysics and Potential Theory	3
Social studies or humanities[29]	3
Technical electives[30]	6
	15

Total credits required, 130. Military science courses numbered below 300 and physical education courses do not apply to this total.

Advanced Degrees

The Department of Geology-Geography offers Master of Science and Doctor of Philosophy degrees in geology and related earth sciences, geochemistry, geophysics, and hydrology. 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 Geology-Geography Department requires that the student demonstrate proficiency in translating the technical literature in his field in the language selected.

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[22]See footnote 1.

[23]See footnote 3.

[24]Students planning to continue beyond the B.S. are advised to take Mathematics 220.

[25]Students planning to continue beyond the B.S. are advised to take Mathematics 311.

[26]See footnote 4.

[27]Technical electives: Suggested technical electives are indicated below. Specific courses are to be chosen by the student in consultation with his adviser.

Geology: 485, 486, 495, 496
Civil Engineering: 372, 492
Mechanical Engineering: 371
Mathematics: 262, 312, 321
Mining Engineering: 443
Physics: 421, 422, 451, 452, 474

[28]Geology electives include: Geology 469, 471, or 482.

[29]See footnote 4.

[30]See footnote 27.

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 (grade-point average) 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 Geology-Geography. Prospective students are encouraged to write directly to the Chairman, Department of Geology-Geography and submit an outline of major interests, experience, and transcripts. Formal application is completed through the Office of Admissions.

The department has a variety of graduate fellowships, research assistantships, and teaching assistantships. Although most requests for assistance should be submitted prior to March 15, many assistantships are awarded at irregular intervals throughout the year and all applications are considered regardless of date of submission.

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 and Geological Engineering

The student may either work with a major, or major-minor program in geology or geological engineering, whichever is most 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, 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, and petrographic 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 Geochemistry

The unusual variety of new equipment for instrumental analysis, includes facilities for atomic absorption, differential thermal analysis, neutron activation, emission spectroscopy, flame photometry, thermal gravimetry, and X-ray diffraction and fluorescence with digital computer operation. Graduate studies can include research ranging from instrumental analysis techniques to combined field and laboratory studies of rocks, economic geology, and the chemistry of natural waters and rock-water relationships. Specific degree requirements are established individually by special advisory committees.

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 specific goals of each student, 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

Faculty: Mousset-Jones, Nelson (Chairman), Scheid

Baccalaureate Degrees

The Mining Engineering 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. In the senior year opportunity is provided for technical electives which allow the student to specialize in areas of specific interest and importance. 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

	Credits
Chem. 101—General Chemistry[31] (or Chemistry 103)	4
C.E. 101—Basic Drafting[32]	0-1
Engl. 101—Composition and Rhetoric[33]	3
Geol. 101—Physical Geology	4
Math. 181—Calculus I[34]	4
Min.E. 101—Industry Orientation Lectures	1
	16-17

SECOND SEMESTER

	Credits
Chem. 102—General Chemistry[35] (or Chemistry 104)	4
Engl. 102—Composition and Literature	3
Math. 182—Calculus II	4
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Laboratory I	1
	15

Summer

Min.E. A—Mineral Industry Employment—(no credit)

Sophomore Year

FIRST SEMESTER

	Credits
Geol. 211—Mineralogy	3
Math. 281—Calculus III	4
Min.E. 213—Computer Programming	2
Min.E. 241—Unit Operations	3
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Laboratory II	1
	16

SECOND SEMESTER

	Credits
Math. 221—Differential Equations	2
M.E. 241—Analytic Mechanics for Engineers	3
Min.E. 246—Mining Systems	3
Min.E. 342—Mine Surveying	1
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Laboratory III	1
P.Sc. 103—Principles of American Constitutional Government	3
	16

Summer

Min.E. 343—Applied Mine Surveying—2

Junior Year

FIRST SEMESTER

	Credits
Ch.E. 361—Thermodynamics	3
C.E. 367—Elementary Fluid Mechanics	3
Geol. 332—Structural Geology	4
Min.E. 351—Mining Law	2
Min.E. 361—Operations Research Methods	3
Social studies or humanities[36]	3
	18

SECOND SEMESTER

	Credits
C.E. 372—Strength of Materials	3
Met.E. 322—Mineral Processing I	4
Min.E. 316—Statistical Analysis in the Earth Sciences	2
Min.E. 344—Mine Environmental Control	3
Social studies or humanities[36]	5
	17

[31]See footnote 1.

[32]Students who have not had mechanical drawing in high school are required to take Civil Engineering 101.

[33]Freshmen scoring 25 or more in English in the ACT test may take 102 instead of 101.

[34]A mathematics placement examination is required of all entering freshmen who plan to enroll in Mathematics 181 (See Orientation Brochure).

[35]See footnote 3.

[36]See footnote 4.

Senior Year

First Semester

	Credits
Geology elective[37]	3
Min.E. 426—Mine Plant Engineering	3
Min.E. 443—Introductory Geotechnology	3
Min.E. 445—Drilling and Boring[38]	3
Min.E. 472—World Mineral Economics	3
Social studies or humanities[36]	2
	17

Second Semester

	Credits
Ec. 201—Principles of Economics I (or Economics 202)	3
Min.E. 406—Senior Report	1
Min.E. 418—Mine Feasibility	2
Min.E. 448—Rock Mechanics I	3
Min.E. 464—Mineral Industry Management	3
Technical electives[39]	3
	15

Total credits required, 134. Military science courses numbered below 300 and physical education courses do not apply to this total.

Advanced Degrees

The Department of Mining Engineering 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. The Master of Science degree can be obtained either with or without the submission of a thesis, as explained under Graduate School.

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in mining engineering or related sciences must have been completed. In addition, the student must qualify in at least one of the following requirements: (1) GPA of 2.5 in the four years of undergraduate work, (2) GPA of 3.0 for the last two years of undergraduate work, or (3) acceptable scores on the verbal and quantitative parts of the Graduate Record Examination aptitude test, with letters of recommendation from former instructors indicating capability for advanced course work and research.

Prospective students are advised to write directly to the Chairman, Department of Mining Engineering, with an outline of major interests, experience and transcripts. Formal application is completed through the Office of Admissions.

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.

[37]Geology electives: 471, 479, 480, 483, 484, 487.

[38]Mining Engineering 446 may be substituted.

[39]Courses may be chosen from the following departments, subject to approval of the Chairman of the Mining Engineering Department and the student's adviser: Accounting and Information Systems, Civil Engineering, Economics, Electrical Engineering, Geology, Managerial Sciences, Mathematics, Mechanical Engineering, Metallurgical Engineering, Mining Engineering, Physics, Renewable Natural Resources.

Orvis School of Nursing

Faculty: Bourbon, Chater, Chauvin, Dick, Dickinson, Dolen, Earl, Elmore, Ezell, Flack, Henschen, House, Howard, Johnson, Lierman, MacVicar, Matheson, Peterson, Svetich, Thelen, Tone, Valcarce, Woodruff

The Orvis School of Nursing offers a baccalaureate degree program with majors in health education, nursing, and prephysical therapy.

The students and faculty of the school participate with the School of Medical Sciences and other colleges on campus in the health sciences program. Through intercollege collaborative efforts, a common core knowledge curriculum provides students in the health sciences opportunities for interdisciplinary learning experiences. Students in nursing have selected courses with others who are preparing for professional-level positions in health care.

Preparation of interprofessional health teams is one of the major goals of the common core knowledge curriculum in the health sciences. Students in nursing begin their preprofessional relationships with others in the health team during the freshman year.

The selective sharing of faculties, facilities, and resources enables students in the health sciences to enjoy enriched learning experiences and to prepare for present and future service in rapidly changing health care delivery systems.

The Baccalaureate Degree Program

Purpose and Objective

The purpose of the baccalaureate program of the Orvis School of Nursing is to prepare students with the desire, tools, and techniques to continue learning after graduation and to grow throughout their lives in professional and personal stature and in usefulness as citizens. The curriculum prepares beginning professional nurses who perform with leadership skills in assessing, implementing and evaluating nursing care of people in a variety of settings.

Program

The program offered by the Orvis School of Nursing is designed to provide both the high school graduate, and graduates of the diploma or the Associate of Arts degree programs 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.

1974-1975 Curriculum Requirements

I. Total number of credits required for graduation Upper-division credits — 60 required Lower-division credits — unspecified	128
	Credits
II. Lower-division prerequisites for nursing majors	
A. Natural science to include chemistry, anatomy and physiology, bacteriology	18-20
B. Behavioral science to include growth and development, psychology, sociology, and anthropology	15
C. Communication skills to include English and interpersonal relationship skills	6-9
D. Humanities to include political science	3
E. Health core	8-10
F. Electives	5
	55-62
	Credits
III. Upper-division requirements for nursing majors	
A. Nursing process and self-learning skills laboratories	48
B. Nursing science	6
C. Natural science to include pharmacology	6
D. Behavioral science	6
E. Electives	0-7
	66-73

IV. Progression policies

A. Progression in the required nursing sequence requires

1. Attaining a minimum grade of C (or satisfactory) for each nursing course
2. Achieving a minimum grade of C (or satisfactory) for the clinical portion of each nursing course

B. Students must have an overall 2.5 grade-point average for progression to junior nursing and maintenance in the nursing sequence. Additional criteria may be established for progression to the junior year.

NOTE: Due to increasing enrollment, completion of the sophomore year does not assure progression into the junior year.

Satisfactory/Unsatisfactory Grading

a. A baccalaureate student may earn a maximum of 30 semester credits in courses graded on an S/U basis.

b. Students majoring in nursing may not take any courses in their major field on an S/U basis except Nursing 201, 301, and 401.

c. Any transfer student who has taken a course in nursing on an S/U basis must have the course reviewed for placement within the curriculum.

Health Education

The Health Education curriculum prepares individuals to help people understand their health needs and aids in developing methods of meeting these needs as members of society. The curriculum emphasizes training in the biological and social sciences which enables the graduate to explain, interpret, and assist people to utilize the latest knowledge and developments in the health sciences.

For specific information about the health education major, contact the Dean, Orvis School of Nursing.

Prephysical Therapy

Physical therapy offers a challenging profession for young men and women who are interested in working as members of the health team in providing comprehensive health care. The physical therapist is concerned with the restoration of function and the prevention of disability following disease, injury, or loss of body parts. Agents such as heat, light, electricity, water, exercise, and massage are used by the physical therapist in treating patients.

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.

A prephysical therapy student who completes the prescribed 96 credits of the prephysical therapy curriculum and who takes the last 40 credits in approved residence at the University may complete the remaining 32 credits by the satisfactory completion of twelve to twenty-four month certification courses from an approved school of physical therapy.

The University is affiliated with Mayo Clinic, Northwestern University, and Children's Hospital at Los Angeles. Admission to certification programs at these 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.

Until such time as a professional program in physical therapy is approved for the University students must complete a professional or certification program elsewhere before they are certified as physical therapists.

For further information concerning physical therapy, contact the Dean, Orvis School of Nursing.

Curriculum

THREE YEARS	*Credits*
English	3-6
Chemistry 171, 172	8
Physics 151, 152, 153, 154	8
Biology	8
Mathematics 102 or 110 (or high school trigonometry)	2-3
Health Sciences 101, 104, 282, 283	12
Psychology 441	3
Psychology 101 or 203	3
Physical Education 390, 452	6
History 111 or Political Science 103	3
Humanities or social science	9
Medical Sciences 251, 252	7
Electives (6 must be over 300)	20
	96

Fourth Year

Students who wish to complete a Bachelor of Science degree in prephysical therapy may do so by completing 128 credits at the University which include:

1. Specific requirements of the three-year program
2. Forty upper-division credits
3. A minimum of 16 credits from the recommended electives
4. An area of concentration consisting of 30 credits in one of the following fields: medical science, biological sciences, nursing or physical education. The area of concentration may include courses required in the three-year program and must be approved by the adviser and dean.

Recommended Electives: Anthropology 102; Biochemistry 271, 272; Biology 270, 340, 350, 351, 355, 370, 371; Elementary and Special Education 172, 310, 411, 412; Electrical Engineering 240, 336, 340; Home Economics 121, 131, 172, 223, 237, 279, 324, 331, 332, 430, 431; Health Sciences 205, 380, 381, 480, 481; Nursing 201, 323, 333; Physical Education 292, 310, 441, 447, 450, 451, 453; Psychology 210; Speech Pathology and Audiology 259, 356, 357, 359, 360; Zoology 309, 346, 347, 368, 446, 447.

Master of Science Program

In the fall of 1972 the Orvis School of Nursing initiated a program of graduate study leading to an M.S. in nursing. Due to inadequate funding, admission to this program has been temporarily suspended.

Additional information regarding this program may be obtained by writing to the Dean, Orvis School of Nursing.

Graduate School

THOMAS D. O'BRIEN, *Dean*

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 Science, Master of Education, Master of Music, 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 foundations, electrical engineering, elementary education, English, foreign languages (French, German, Spanish), geochemistry, geological engineering, geology, geophysics, history, home economics, hydrology and hydrogeology, journalism, mathematics, mechanical engineering, metallurgical engineering, mining engineering, music, nursing, pest control, philosophy, physical education, physics, plant, soil and water science, political science, psychology, renewable natural resources, school administration, secondary education, sociology, special education, speech pathology and audiology, and zoology.

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, and social psychology.

Inquiries about Graduate Study and Financial Aids

Students should write the Office of Admissions for application materials. They should write the department or college in which they are interested for information about academic programs or about financial aids, fellowships, and graduate assistantships.

Admission to Graduate School

Students who have completed a baccalaureate degree may be admitted to the graduate school as graduate special students or students with graduate standing by following application procedures described below. *No student may register for graduate courses unless officially admitted to the Graduate School in one of the following classifications.*

Graduate Special

The Graduate Special classification is for students who do not wish to pursue a program leading to an advanced degree, for students who are unable to complete application for admission to graduate standing prior to registration, or for students who do not meet requirements for graduate standing but have been authorized by a department to enroll for graduate credit.

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 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 student may transfer from graduate special status to graduate standing by meeting the requirements specified below, and may be allowed to apply as many as 9 graduate special credits to an advanced degree.

Credits earned during the semester the student is admitted to graduate standing are exempt from the graduate special credit limitation.

Graduate Standing

The Graduate Standing classification is for 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. It does not, however, imply admission to candidacy for a higher degree. Every department, with the approval of the academic dean, reserves the right to determine which students it will accept for graduate work.

GRE or ATGSB Examinations. Scores on the Graduate Record Examination (the aptitude tests

and the advanced test where offered) or on the Admission Test for Graduate Study in Business should be filed with the Graduate School by all students prior to admission to graduate standing, and must be filed not later than the end of the first semester or completion of the first 9 credits of graduate standing work. Scores on the test must be satisfactory to the department concerned.

Graduate Standing–Master's Programs. The student who wishes to be admitted to work toward a Master's degree must meet the following academic requirements:

1. An undergraduate over-all grade-point average 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 undergraduate major or at least 18 credits of undergraduate work in courses acceptable to the department; however, departments reserve the right to specify additional requirements. A student must make up any deficiencies in undergraduate requirements.

Admission by Examination. Students who do not meet the above grade-point requirements or have completed their work at unaccredited institutions may be reconsidered if they present satisfactory scores, as determined by the Graduate Council and the department concerned, on the Graduate Record Examinaton (the aptitude tests and the advanced test where offered) or on the Admission Test for Graduate Study in Business.

Admission by Prescribed Program. An applicant who is denied admission to graduate standing due to an inadequate undergraduate grade-point average or unsatisfactory test scores may be admitted and enroll in the Graduate Special classification. Such a student can qualify for admission to Graduate Standing by successfully completing one semester or summer session of full-time graduate study in a minimum of 9 graduate credits in courses previously approved by the department chairman, dean of the college, and the Graduate Dean, with a grade of B or better in *each* course comprising the 9 credits.

Applicants interested in qualifying for admission to Graduate Standing in this manner should contact the dean of the college concerned for specific information in advance of the planned registration.

Graduate Standing–Doctoral Programs. Upon recommendation from the major department, college graduates may be admitted to work toward a Ph.D. degree in the Graduate School if they meet the following requirements:

1. An overall grade-point average of 3.0 or higher on all undergraduate and graduate work.
2. Satisfactory completion of necessary prerequisites for work in the 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. Provisional standing may be changed to full standing upon successful completion of two semesters of full-time graduate work as certified by the major department. A student may not remain on provisional standing for more than two semesters. Advanced work undertaken while on provisional status is fully applicable toward advanced degrees.

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. In exceptional cases, a senior who does not satisfy these requirements may be given permission by the department and the Dean of the Graduate School to take graduate courses. 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.

Application Procedures

Any student seeking admission to graduate courses must submit to the Office of Admissions a completed Graduate Application for Admission form, obtainable from the Office of Admissions, and two official transcripts from each college or university where work has been completed or is in progress. 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 Ad-

missions at least three weeks before registration day of any session to insure processing by registration day. For all entering students who register for seven credits or more, a medical examination is required as specified on the admission form.

(For additional information on admissions procedures see the Admission Information section.)

Registration Procedure

Each student who plans to register for graduate courses must be admitted to graduate study at the University of Nevada, Reno, *prior* to registration, except certain University of Nevada, Reno, seniors (see above). Specific instructions regarding registration are available in the current class schedule.

Fees

Graduate students are required to pay the application fee, the consolidated graduate fee, specialized instruction expenses, tuition (for out-of-state students), the Association of Graduate Students fee, and Summer School fees as specified in the Fees and Expenses section. Graduate students are not required to pay the ASUN fee. Consolidated and tuition fees may be waived for graduate assistants, trainees, and fellows provided such condition are specified in their contracts.

General Regulations

The following regulations apply to all graduate programs at the University.

Graduate Courses

Courses numbered 600 and above are for graduate credit (see Numbering System) and are open to only those who have been officially admitted to graduate study. Certain 600-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.

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. No graduate credit is allowed for correpondence study completed at the University of Nevada or elsewhere.

Extension Courses. No graduate credit earned through extension courses is accepted for transfer credit.

Workshop Courses. No more than 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. No more than 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. No more than 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

No full-time graduate student may 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 may constitute full-time study.

Application for an Advanced Degree

During the first ten days of either the final semester or the beginning of Summer School, each candidate is required to submit an application for an advanced degree to the Dean of the Graduate School, which includes the approval of the adviser, the expected date of the final examination, and the date of graduation. Applications filed after this date are charged a late fee. No application for an advanced degree is 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

At the time the student first enrolls in the Graduate School, an adviser is assigned. 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 committee should be appointed at least by the end of the semester in which the 12th 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 candidates for the Ph.D. degree, the committees should be appointed as soon as the student has chosen a field of specialization and can request that a staff member under whom he wishes to do research can act as chairman of his committee and permanent adviser. In no case should the committee be appointed later than during the semester before the student takes his comprehensive examination. 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 his 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 Science, and Master of Business Administration, academic degrees that require a thesis, Master of Arts for the Teaching of English, Master of Education, and Master of Music. 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.

900 Courses. A minimum of 18 credits, including thesis credits, in courses numbered 900 or above is required for Master's degrees, Plan A. A minimum of 15 credits in courses numbered 900 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. Not more than 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.S., M.B.A., or M.M. 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 his 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. No minor is 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, Plan A the 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 Toward Master's Degrees

Approval of Program. The graduate student's adviser, the department head, and the advisory committee determine the program of studies for each master's degree, including the thesis and the courses acceptable toward the graduate degree program. 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. This lists 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. 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. No student entering graduate work is admitted to candidacy at the time of his first registration. At any time, however, after 10 credits of graduate work are completed, a student may apply for admission to candidacy for the master's degree, using forms available at 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 his advisory committee for his program of study, including his 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, see *Thesis and Dissertation* below.

Comprehensive Examination in the Plan B

Program. In the Plan B program a candidate must pass a written comprehensive examination in his field(s) of specialization to qualify for the degree. 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 Graduate School for official records at least two weeks prior to the final oral examination.

Final Examination. Not later than three weeks before the close of the semester or term a final oral examination is conducted by the advisory and examining committee. 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 examiation is held during regular University sessions.

Approval of Thesis and Examination. A unanimous favorable decision of the examining committee on the thesis and the examination is required in Plan A. Final approval of the thesis is reported by the 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.

The Doctor of Philosophy (Ph.D.) Degree

The Doctor of Philosophy degree is primarily a research degree and is not granted solely on the completion of a certain number of credits or a course of study, but chiefly in recognition of the candidate's proficiency as shown by an acceptable research dissertation and the passing of examinations in the area of study.

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.

Credits for Master's Degree. A maximum of 24 credits toward the Ph.D. degree may be allowed for a master's degree awarded by another institution.

900 Courses. A minimum of 12 credits beyond requirements for the master's degree is required in courses numbered 900 or above, exclusive of dissertation credits.

Transfer Credits. With the approval of the major department and the Graduate Dean, a maximum of 24 graduate credits in course work with grades of B or better may be transferred from another university.

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 atter of several departments.

Approval of Ph.D. Program

As soon as practical after its appointment, the advisory 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 (excludes 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 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, (4) presentation of a satisfactory score on the Graduate School Foreign Language Test of the Educational Testing Service.

Admission to Candidacy

The student is admitted 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 Limit on Candidacy. Candidacy, when approved by the Graduate School, is valid for five calendar years from the date of approval. If the degree is not received within this period, a new application for candidacy must be submitted, involving, of course, a complete re-evaluation of the candidate's program for the degree. The Graduate School may at its discretion deny a second application for candidacy.

Examinations

Qualifying Examinations: In order to determine the student's progress and ability, each department will give 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 his 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 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. The committee may arrange for re-examination in case of failure.

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

As the thesis or dissertation usually requires close and constant supervision by the director in charge, the candidate should develop the thesis while in residence. 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

Except for the professional degree, a master's candidate must register for at least 6 credits of thesis and a Ph.D. candidate for at least 24 credits in work leading to the dissertation. Every graduate student must register for 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 grade-point average 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

Not later than eight weeks before the final examination a draft of the thesis or dissertation must be in the hands of members of the examining committee, 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 examining committee, the original and two 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

For each Ph.D. dissertation, the library will arrange for microfilming by University Microfilms, Ann Arbor, Michigan. Publication on microfilm does not preclude other forms of publication. The candidate must also submit an abstract, not exceeding 600 words in length, which has been approved by the examining committee. This abstract will be published in full in Dissertation Abstracts, a journal with international circulation. Costs of microfilming, publishing the abstract and binding must be paid by the candidate.

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 of the University of Nevada or upon graduates of other institutions who have obtained the Master of Science degree in engineering from the University of Nevada, Reno. 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 who 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 presentation of the work of others.

The professional engineering degrees may also be conferred upon graduates of the Mackay School of Mines of the University of Nevada, Reno, 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 of Nevada, Reno.

Formal application for 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 approved in turn 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.

Noble H. Getchell Library

Manzanita Lake

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.*

50-99 are second-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.

600-699 are 300-level courses approved for graduate credit.

700-799 are 400-level courses approved for graduate credit.

900-999 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.

F, S indicate the half-year in which a course is offered. For example, F is first semester; S is second semester; F, S both semesters.

F-S means the course is given throughout the year, the first half of the course (bearing the odd number) usually is offered the first semester, and the second half of the course (bearing the even number) usually is offered the second semester.

SU is a summer course.

*Associate degree courses numbered 1-99 are not applicable toward baccalaureate or advanced degrees.

Abbreviations

Acc.—Accounting
A.R.Ec.—Agricultural and Resource Economics
Ag.—Agriculture, General
A.Sc.—Animal Science
Anth.—Anthropology
Art—Art
Basq.—Basque
B.Ch.—Biochemistry
Biol.—Biology
Bot.—Botany
B.A.—Business Administration
Ch.E.—Chemical Engineering
Chem.—Chemistry
C.E.—Civil Engineering
C.E.T.—Civil Engineering Technology
C.O.P.I.—Committee on Philosophy of Inquiry (Interdisciplinary courses)
C.A.P.S.—Counseling and Guidance Personnel Services
C.J.—Criminal Justice
Ec.—Economics
Ed.—Educational Foundations
E.E.—Electrical Engineering
E.E.T.—Electronics Engineering Technology
E.S.Ed.—Elementary and Special Education
Engr.—Engineering
Engl.—English
Ent.—Entomology
Env.—Environmental Studies Board
Fr.—French
Geog.—Geography
Geol.—Geology
Ger.—German
H.Scs.—Health Sciences
Hist.—History
H.Ec.—Home Economics
Hon.—Honors Study Board
Hum.—Humanities
I.M.—Industrial Mechanics
I.S.—Information Systems
Ital.—Italian
Jour.—Journalism
Lat.—Latin
L.Sc.—Library Science
Mgr.S.—Managerial Sciences
Math.—Mathematics
M.E.—Mechanical Engineering
M.E.T.—Mechanical Engineering Technology
Med.S.—Medical Sciences
Met.E.—Metallurgical Engineering
Mil.—Military Science
Min.E.—Mining Engineering
Mus.—Music
N.E.—Nuclear Engineering
Nurs.—Nursing

O.A.—Office Administration
Phil.—Philosophy
P.Ed.—Physical Education
Phys.—Physics
P.S.W.—Plant, Soil, and Water Science
P.Sc.—Political Science
Port.—Portuguese
Psy.—Psychology
R.N.R.—Renewable Natural Resources
Russ.—Russian
Sch.A.—School Administration
S.Ed.—Secondary Education
S.Sv.C.—Social Services and Corrections
Soc.—Sociology
Span.—Spanish
Sp.Th.—Speech and Theatre
S.P.A.—Speech Pathology and Audiology
Zool.—Zoology

School of Home Economics

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.

Accounting (Acc.)

Associate Degree Courses[1]

20 RECORDS AND ACCOUNTS I (2+2) 3 credits F,S
Kinds, uses and analysis of records and accounts used by small business and service industries for directing management decisions.

Baccalaureate and Advanced Degree Courses[2]

201 FINANCIAL ACCOUNTING (3+0) 3 credits F,S
Purpose and nature of accounting, measuring business income, forms of business organization, accounting principles, asset and equity accounting.

202 MANAGERIAL ACCOUNTING (3+0) 3 credits F,S
Cost concepts and decision making; break-even analysis, fixed and variable costs, budgeting. Prerequisite: Acc. 201.

303 INTERMEDIATE ACCOUNTING I (3+0) 3 credits F,S
Theory and practice of accounting for cash, receivables, prepaid and accrued items, plant and equipment, intangible assets. Prerequisite: Acc. 201.

304 INTERMEDIATE ACCOUNTING II (3+0) 3 credits F,S
Current and fixed liabilities, stocks, retained income, capital surplus, reserves, correcting entries, single entry, statement analysis, source and application of funds. Prerequisite: Acc. 303.

307, 607 GOVERNMENTAL ACCOUNTING (3+0) 3 credits S
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 F,S
Cost analysis applied to decision making. Materials, labor and overhead, job order and process costing. Budgeting and standard costs. Prerequisite: Acc. 201.

310, COST ACCOUNTING II (3+0) 3 credits F,S
A continuation of cost accounting concepts; nonmanufacturing costs, relevant costs, inventory valuation, joint and by-products, and capital budgeting. Prerequisite: Acc. 309.

313, 613 FEDERAL TAX ACCOUNTING I (3+0) 3 credits F
Income, expenses, exclusions, deductions and credits. Emphasis on individual returns. Prerequisite: Acc. 201.

314, 614 FEDERAL TAX ACCOUNTING II (3+0) 3 credits S
Partnerships, corporations, estates, trusts, social security, and administration. Prerequisite: Acc. 313.

395-396 INTERNSHIP IN ACCOUNTING 2 credits each F,S SU
Cooperative education program with public accounting firms, Internal Revenue Service, and state and local governments where students work part-time with one of the cooperating firms for a specified time. Prerequisite: Acc. 201, 303, 304, 309, 310, 313 and specified overall and accounting grade-point averages.

405, 705 ADVANCED ACCOUNTING (3+0) 3 credits F,S
Partnerships, joint ventures, installment sales, consignments, receiverships, estates, trusts, home office and branch, consolidated statements, actuarial science. Prerequisite: Acc. 304.

411, 711 AUDITING I (3+0) 3 credits F,S
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, 712 AUDITING II (3+0) 3 credits S
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, 770 ADVANCED TAX PROBLEMS AND PLANNING (3+0) 3 credits S
Federal, state and local taxation in relation to long-range planning of business and personal affairs. Prerequisite: Acc. 313 or equivalent.

490, 790 INDEPENDENT STUDY 1 to 3 credits F,S
Independent study in selected topics. May be repeated to a maximum of 6 credits.

491, 791 CPA PROBLEMS I (3+0) 3 credits F
Comprehensive study of certified public accountants problems in the practice area preparatory for the CPA examination. Prerequisite or corequisite: Acc. 405.

493, 793 ACCOUNTING THEORY (3+0) 3 credits F,S
A review of accounting literature and contemporary accounting problems. Emphasis is placed on the development of basic accounting concepts. Prerequisite: Acc. 304.

901 ACCOUNTING FOR MANAGERIAL ANALYSIS (3+0) 3 credits F,S
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.

915 ACCOUNTING CONCEPTS AND ANALYSIS (3+0) 3 credits F
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.)

920 SEMINAR IN ACCOUNTING (3+0) 3 credits F,S
Study of contemporary accounting literature and problems.

990 INDEPENDENT STUDY 1 to 3 credits F,S
Advanced study in selected topics. May be repeated to a maximum of 6 credits.

[1]Not applicable to baccalaureate and advanced degree programs.

[2]Graduate courses numbered 600 to 699 are not applicable toward an advanced degree in accounting.

997 THESIS 1 to 6 credits F,S

Inactive Courses

261 HOTEL ACCOUNTING (2+0) 2 credits S
354, 654 INDUSTRIAL ACCOUNTING (3+0) 3 credits F,S
492, 792 CPA PROBLEMS II (3+0) 3 credits S
494, 794 SEMINAR IN ACCOUNTING (3+0) 3 credits F,S
935 THEORY OF FINANCIAL ACCOUNTING (3+) 3 credits F,S

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

Associate Degree Courses[1]

80 FARM AND RANCH MANAGEMENT (2+2) 3 credits S
Economic principles applied to farm and ranch management decision-making for crop and livestock enterprises.

Baccalaureate and Advanced Degree Courses

100 AGRICULTURE AND RESOURCES IN THE ECONOMY (3+0) 3 credits F,S
Introduction to the role of economics in agricultural, human, and natural resources.

202 AGRICULTURAL AND RESOURCE ECONOMICS (3+0) 3 credits F,S
Application of economic principles to agriculture and renewable natural resources in the microenvironment. Prerequisite: A.R.Ec. 100.

211 FARM AND RANCH BUSINESS ANALYSIS (2+2) 3 credits F
Study of 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 S
Introduction to processes of local public policy in the nonmetropolitan community. Goal formulation as influenced by socio-economic characteristics of community, revenue management, and public planning. (Offered in even numbered years.)

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in agricultural and resource economics.

315 AGRICULTURAL FINANCE (3+0) 3 credits F
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. 202. (Offered in even numbered years.)

332 AGRICULTURAL ECONOMIC POLICY (3+0) 3 credits S
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. 202.

362, 662 LAND ECONOMICS (3+0) 3 credits S
Underlying principles pertaining to urban, agricultural, mineral, forest, range, and other types of land in their social setting. Prerequisite: A.R.Ec. 202 or Ec. 202.

364, 664 ECONOMICS OF OUTDOOR RECREATION (2+2) 3 credits S
Application of economic principles to outdoor recreation problems and policies. Prerequisite: A.R.Ec. 202 or Ec. 202. (Offered in even numbered years.)

[1]Not applicable to baccalaureate and advanced degree programs.

400 UNDERGRADUATE SEMINAR (1+0) 1 credit F,S
Research work and reports on topics of interest in agricultural and resource economics. Prerequisite: senior standing.

411, 711 FARM AND RANCH MANAGEMENT (3+0) 3 credits F
Principles and problems involved in the organization and management of farms and ranches. Field trip required. Prerequisite: A.R.Ec. 202 or Ec. 202 or A.R.Ec. 211.

421, 721 MARKETING AND PRICES FOR FOOD AND FIBER PRODUCTS (3+0) 3 credits F
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. 202.

460, 760 ECONOMICS OF COMMUNITY RESOURCE DEVELOPMENT(3+0) 3 credits S
Basic community resource development principles, practices, and applied procedures. Classification of physical, economic, and social resources, and their relationship to development. Prerequisite: Ec. 202 or Soc. 101. (Same as Geog. 440.)

466, 766 ECONOMICS OF WATER RESOURCE USE (3+0) 3 credits S
Analysis of development, management and use of water resources for multiple purposes. The place of water development in public policy, with particular reference to the western United States economy. Prerequisite: A.R.Ec. 202 or Ec. 202. (Offered in odd numbered years.)

472, 772 REGIONAL ECONOMIC ANALYSIS (3+0) 3 credits S
(See Ec. 472 for description.)

480 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in agricultural and resource economics.

485, 785 SPECIAL TOPICS (1 to 3+0) 1 to 3 credits F,S SU
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. May be repeated to a maximum of 6 credits.

900 GRADUATE SEMINAR (1+0) 1 credit F,S
Research work and reports on topics of interest in agricultural and resource economics.

910 ADVANCED AGRICULTURAL PRODUCTION ECONOMICS (3+0) 3 credits F
Production principles applied to allocation of land, labor, capital, and management in agriculture. (Offered in odd numbered years.)

920 THEORY OF MARKETS (3+0) 3 credits F
Theory and description of competitive market relationships prevailing in our economy today. Emphasis placed on firm and industry in imperfect competition. (Offered in even numbered years.)

930 ADVANCED AGRICULTURAL ECONOMIC POLICY (3+0) 3 credits S
Analysis of welfare economic theory related to internal and external problems of agriculture and agricultural policy. (Offered in even numbered years.)

940 RESEARCH METHODOLOGY (3+0) 3 credits S
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. (Offered in even numbered years.) (Same as Ec. 940.)

950 ADVANCED AGRICULTURAL PRICE ANALYSIS (3+0) 3 credits S
Application of mathematical and statistical techniques in the analysis of agricultural prices. (Offered in odd numbered years.)

960 ECONOMICS OF RENEWABLE NATURAL RESOURCES (3+0) 3 credits S
Advanced application of economic principles to renewable natural resource development, use, conservation, and policy issues. (Offered in odd numbered years.)

980 INDIVIDUAL STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in agricultural and resource economics. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits.

996 PROFESSIONAL PAPER 1 to 3 credits F,S SU
Required of all graduate students who wish to complete the Master of Science degree under Plan B.

997 THESIS 1 to 6 credits F,S SU

Agriculture—General (Ag.)

Associate Degree Courses[1]

20 AGRICULTURAL CAREERS AND INTRODUCTION TO THE WORK-STUDY PROGRAM (2+0) 2 credits F,S
Exploring the areas of jobs in agriculture and preparing the students for their on-the-job work experience by the use of aptitude tests, resumés, letters of application, and oral interviews.

21 AGRICULTURAL CALCULATIONS (2+3) 3 credits
Fundamentals and practical mathematical calculations used in agriculture and business related to agriculture.

30 ON-THE-JOB WORK EXPERIENCE 1 credit F,S SU
Satisfactory employment for 10 weeks full time or equivalent in a coordinated work experience program approved by the employer, coordinator, and option director. Required to obtain the associate degree. Prerequisite: Ag. 32. *S/U only.*

Baccalaureate and Advanced Degree Courses

150 AGRICULTURAL MATHEMATICS (2+3) 3 credits F,S SU
Mathematics used for solving practical problems in agriculture, business, and mechanics. Prerequisite: two units of high school mathematics or satisfactory score in qualifying examinations.

216, 316, 416 INTERNSHIP (1 to 3+0) 1 to 3 credits F,S SU
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. *S/U only.*

270 AGRICULTURAL STATISTICS (2+3) 3 credits F,S
Introduction to the principles of statistics and application to the field of agriculture.

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
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.

409, 709 UNITED STATES AGRICULTURAL HISTORY (3+0) 3 credits F
(See Hist. 409 for description.) Prerequisite: junior, senior, or graduate agriculture students.

461, 761 WESTERN UNITED STATES RESOURCES AND INDUSTRIES (3+0) 3 credits F
(See Geog. 461 for description.)

480 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in general agriculture.

900 STATISTICAL METHODS (2+2) 3 credits F,S
Techniques of statistical inference and their application. Prerequisite: Ag. 270.

901 ANALYSIS OF VARIANCE AND COVARIANCE (1+2) 2 credits S
Orthogonal contrasts and multiple comparisons are introduced to examine structured treatment designs and unstructured treatment designs, respectively. Covered factorial treatment designs, including consideration of the nature and importance of interaction, fixed, mixed, random models, and analysis of covariance. Prerequisite: Ag. 900.

902 MULTIPLE AND NONLINEAR REGRESSIONS (1+2) 2 credits S
Matrices receive sufficient attention to be used in the discussion of general k-variable multiple regression. Prerequisite: Ag. 900.

910 EXPERIMENTAL DESIGN (1+2) 2 credits F
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. 900 or equivalent.

960 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.

980 INDIVIDUAL STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in general agriculture. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits.

Animal Science (A.Sc.)

Baccalaureate and Advanced Degree Courses

100 ANIMALS IN MAN'S ECOSYSTEM (3+0) 3 credits F,S
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
Survey of the 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.)

103 ANIMAL SCIENCE LABORATORY (0+3) 1 credit F
Survey of animal products and enterprises with emphasis on market grades and classes of livestock, meat, and other products. Corequisite: A.Sc. 100 or 104.

104 LIVESTOCK PRODUCTION (3+0) 3 credits F
Study of the sciences and principles basic to livestock production. Beef cattle, sheep, horses, and swine are considered.

203 MEAT TECHNOLOGY (2+3) 3 credits S
Study of the status and functions of the meat industry. Slaughtering of farm animals, wholesale and retail cuts of meat, carcass grading.

206 HORSE HUSBANDRY (1+3) 2 credits F
Care and management of horses including breeding, disease, nutrition, and selection. Prerequisite: A.Sc. 100, 104 or Biol. 201.

207 NONINFECTIOUS DISEASES AND PARASITES OF DOMESTIC ANIMALS (2+3) 3 credits F
Introductory study of diseases and parasites of domestic animals with emphasis on those of importance to the livestock industry of Nevada.

211 FEEDS AND FEEDING (2+3) 3 credits F
Basic principles of feeding farm animals; feeding standards; composition and nutritive value of feeds; compilation and preparation of rations. Prerequisite: A.Sc. 100, Chem. 101 or 171.

[1]Not applicable to baccalaureate and advanced degree programs.

216, 316, 416 INTERNSHIP (1 to 3+0) 1 to 3 credits F,S SU
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. *S/U only.*

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in animal science.

301, 601 LIVESTOCK SELECTION (1+3) 2 credits S
Principles and practices of livestock evaluation.

307, 607 PHYSIOLOGY OF THE DOMESTIC ANIMAL (4+3) 5 credits F
Physiology of the neuromuscular, central nervous, circulatory, respiratory, digestive, endocrine, reproductive, and execretory systems with special reference to domestic animals. Prerequisite: Zool. 309.

308, 608 INFECTIOUS DISEASES OF DOMESTIC ANIMALS (3+0) 3 credits S
Study of the cause, pathogenesis, and control of the infectious diseases of domestic animals with emphasis on those occurring in Nevada. Prerequisite: A.Sc. 307, Biol. 351 recommended.

400 UNDERGRADUATE SEMINAR (1+0) 1 credit F,S
Research work and reports on topics of interest in animal science. Prerequisite: senior standing.

404, 704 WATER METABOLISM (3+0) 3 credits S
Study of the functions of water as related to various homeostatic mechanisms in animals such as body temperature regulation, absorption, and excretion. Prerequisite: A.Sc. 307 or Zool. 224 or 446. (Offered in even numbered years).

405, 705 ANIMAL GENETICS (3+3) 4 credits S
Mechanisms of heredity, variation, methods of selection, systems of mating, with special reference to livestock. Prerequisite: A.Sc. 100, Biol. 201 or equivalent.

406, 706 ANIMAL NUTRITION (3+0) 3 credits S
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.

410, 710 PHYSIOLOGY OF REPRODUCTION IN DOMESTIC, LABORATORY, AND GAME ANIMALS (3+0) 3 credits S
Reproductive organs and their functions, neural and endocrine interrelationships and responses to environmental influences. Prerequisite: Chem. 142, A.Sc. 307 or Zool. 224 or equivalent.

411, 711 TECHNIQUES IN LIVESTOCK REPRODUCTION (1+3) 2 credits F
Evaluation and application of various techniques to control and determine reproductive functions in livestock. Prerequisite: A.Sc. 410.

412, 712 PHYSIOLOGY OF LACTATION (2+0) 2 credits S
Anatomy and functions of the mammary gland; hormonal physiological and biochemical aspects of lactation and factors associated with lactation. Prerequisite: Chem. 142, A.Sc. 307 or Zool. 224 or equivalent. (Offered in odd numbered years.)

414, 714 ENDOCRINOLOGY (3+0) 3 credits S
Study of endocrines and their hormonal secretions with special reference to their effects on growth, development, and reproduction of domestic animals. Prerequisite: A.Sc. 307 or Zool. 224 or 446. (Offered in odd numbered years.)

480 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in animal science.

485, 785 SPECIAL TOPICS (1 to 3+0) 1 to 3 credits F,S SU
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. May be repeated to a maximum of 6 credits.

900 GRADUATE SEMINAR (1+0) 1 credit F,S
Research work and reports on topics of interest in animal science.

907 ARID LAND ANIMAL NUTRITION (2+0) 2 credits F
Composition, selection, digestibility, and utilization of nutritionally important range plants by domestic animals and wildlife. Prerequisite: A.Sc. 406 and R.N.R. 241 or P.S.W. 355. (Offered in odd numbered years.)

910 GRADUATE TOPICS (2+0) 2 credits F,S
Recent research in various areas in animal science including nutrition, physiology, breeding, meats, or animal health is discussed and evaluated. May be repeated for credit.

913 PHYSIOLOGICAL SURGERY (1+3) 2 credits F
A study of surgical techniques used to obtain specialized information from research animals. Prerequisite: Zool. 309, A.Sc. 307, Biol. 351 or equivalent. (Offered in even numbered years.)

980 INDIVIDUAL STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in animal science. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits.

996 PROFESSIONAL PAPER 1 to 3 credits F,S SU
Required of all graduate students who wish to complete the Master of Science degree under Plan B.

997 THESIS 1 to 6 credits F,S SU

Inactive Courses

20 MEAT IDENTIFICATION (1+3) 2 credits S
50 ANIMAL FEEDS (2+3) 3 credits S
313, 613 FEEDS AND FEEDING LABORATORY (0+3) 1 credit F

Anthropology (Anth.)

100 GENERAL ANTHROPOLOGY (3+0) 3 credits
General introduction to anthropology, including a survey of biological, cultural, and other approaches to the study of man. For students majoring in fields other than anthropology, psychology, and sociology.

101 INTRODUCTION TO CULTURAL ANTHROPOLOGY (3+0) 3 credits
Analysis of the nature of culture, its universal aspects and range of variations revealed by human history and world ethnography. Restricted to majors in anthropology, sociology, or social psychology.

102 INTRODUCTION TO HUMAN EVOLUTION AND PREHISTORY (3+3) 4 credits
The emergence of man and the development of prehistoric culture, examination of human evolution, fossil hominids, and the biological variability of modern man. Directed laboratory projects in human evolution, geochronology, human biology, and comparative primatology.

201 WORLD ETHNOGRAPHY (3+0) 3 credits
Intensive coverage of selected classics in the development of anthropological thought seen in their historical contexts. Prerequisite: Anth. 100 or 101.

202 INTRODUCTION TO PREHISTORIC ANTHROPOLOGY (3+0) 3 credits
Methods of collection and interpretation of anthropological data from extinct human populations, emphasizing the interrelationship of cultural, biological, and ecological data. Prerequisite: Anth. 100 or 101 or 102.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3+0) 3 credits
A survey of 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.)

305, 605 ANTHROPOLOGICAL LINGUISTICS (3+0) 3 credits
Distribution of languages of the world. Descriptive techniques and theoretical concepts in linguistics; their application to specific problems in anthropology. Prerequisite: Anth. 100 or 101.

310, 610 PREHISTORY OF THE OLD WORLD (3+0) 3 credits
Evidences for the development and distribution of prehistoric culture in Europe, Africa, and Asia. Prerequisite: Anth. 100 or 101 and 102.

311, 611 APPLIED LINGUISTICS (3+0) 3 credits
(See Engl. 311 for description.)

312, 612 COMPARATIVE SOCIAL ORGANIZATION (3+0) 3 credits
The basic institutions of human society; examination of the variability of structure in social systems and culture. Prerequisite: Anth. 100 or 101 and 102.

316, 616 LANGUAGE AND CULTURE (3+0) 3 credits
The 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. 100 or 101. (Same as Engl. 316.)

322, 622 COMPARATIVE RELIGIOUS SYSTEMS (3+0) 3 credits
The nature and functions of religion in various societies; the development of theoretical concepts in the anthropological study of religious and magical phenomena. Prerequisite: Anth. 100 or 101 or 201 and 102.

330, 630 MATERIAL CULTURE AND TECHNOLOGY (3+0) 3 credits
The comparative study of material culture in societies of different scale and complexity; the history, development, and distribution of the major technologies. Prerequisite: Anth. 100 or 101 and 102.

335, 635 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. 100 or 101 and 102.

339 MYTHOLOGY AND FOLKLORE (3+0) 3 credits
(See Engl. 339 for description.)

342, 642 COMPARATIVE ART (3+0) 3 credits
The nature and functions of art and esthetic values in various societies, the techniques and forms of art; esthetics and art in anthropological theory. Prerequisite: Anth. 100 or 101 and 102.

350, 650 ECONOMIC ANTHROPOLOGY (3+0) 3 credits
Economic behavior and organization in selected nonindustrial societies; the relation of economic activity to social organization; theories of economic integration and development. Prerequisite: Anth. 100 or 101 and 102. (Same as Ec. 350.)

352, 652 POLITICAL ANTHROPOLOGY (3+0) 3 credits
Comparative study of the political organization of band, tribal and state level societies. Analysis of the modernization of traditional regions and of peasant and primitive warfare, rebellion and revolution.

360, 660 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. 100 or 101 and 102.

362, 662 INDIANS OF NORTH AMERICA (3+0) 3 credits
The 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. 100 or 101 and 102.

363, 663 INDIANS OF SOUTH AMERICA (3+0) 3 credits
The 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. 100 or 101 and 102.

365, 665 PEOPLES AND CULTURES OF AFRICA (3+0) 3 credits
African culture history; analysis of social systems and cultural distributions; emergence of modern nations. Prerequisite: Anth. 100 or 101 and 102.

366, 666 OLD WORLD BASQUE CULTURE (3+0) 3 credits
(See Basq. 366 for description.)

367, 667 PEOPLES AND CULTURES OF ASIA (3+0) 3 credits
Analysis of representative cultures of Asia, their origins and development. Prerequisite: Anth. 100 or 101 and 102.

368, 668 PEOPLES AND CULTURES OF THE PACIFIC (3+0) 3 credits
Prehistory, recent cultures, and problems of change among the peoples of Oceania. Prerequisite: Anth. 100 or 101 and 102.

370, 670 AFRO-AMERICAN PEOPLES AND CULTURES (3+0) 3 credits
Relations between Africa and the Americas; Black communities in the New World; social organization, history, and problems of acculturation. Prerequisite: Anth. 100 or 101, 205.

388, 688 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, 692 PROCESSES OF SOCIAL AND CULTURAL CHANGE (3+0) 3 credits
Methods and theories of anthropology identified and analyzed. Evolution, diffusion, acculturation, integration, revitalization, modernization, and other social and cultural processes are examined. Prerequisite: Anth. 100 or 101 or 312.

400, 700 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, 701 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, 711 LINGUISTICS (3+0) 3 credits
(See Engl. 411 for description.)

415, 715 PHONEMICS AND COMPARATIVE PHONETICS (3+0) 3 credits
(See Engl. 415 for description.)

420, 720 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, 723 PREHISTORY 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, 725 PRE-HISPANIC CIVILIZATIONS OF THE NEW WORLD (3+0) 3 credits
Comparative studies of the development of civilization in North and South America prior to the Spanish conquest. Emphasis is given to Mexico and Peru.

435, 735 PRIMATE BEHAVIOR (3+0) 3 credits
Behavior and social organization of the nonhuman primates; comparisons with human populations, implications for human evolution. Prerequisite: Anth. 100 or 102.

440, 740 SEMINAR IN THE HISTORY OF ANTHROPOLOGY (3+0) 3 credits
Undergraduate seminar providing a historical approach to the development of anthropology as a discipline and its relationship to other fields. Required of majors in the senior year.

450, 750 PEASANT SOCIETY (3+0) 3 credits
An 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. 100 or 101.

455, 755 INTRODUCTION TO BASQUE LINGUISTICS (3+0) 3 credits
(See Basq. 455 for description.)

460, 760 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. May be repeated to a maximum of 6 credits.

465, 765 CULTURE AND PERSONALITY (3+0) 3 credits
Examination of significant studies on the role of culture in the formation of personality. Prerequisite: Anth. 100 or 101 or Psy. 101 or Soc. 101.

470, 770 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, 775 ANTHROPOLOGY AND EDUCATION (3+0) 3 credits
(See Educ. 475 for description.)

499, 799 SPECIAL PROBLEMS IN ANTHROPOLOGY (1 to 6+0) 1 to 6 credits
Research or reading to be carried out with the supervision of instructor. May be repeated to a maximum of 6 credits.

901 INDIVIDUAL READING 1 to 6 credits
Supervised reading with regular conferences between student and instructor. May be repeated to a maximum of 6 credits.

902 GRADUATE RESEARCH 1 to 6 credits
Research projects in anthropology carried out under supervision. May be repeated to a maximum of 6 credits.

903 GRADUATE SEMINAR IN CULTURAL ANTHROPOLOGY (3+0) 3 credits
A close examination of basic concepts, theories, and methods of social and cultural anthropology.

904 GRADUATE SEMINAR IN PHYSICAL ANTHROPOLOGY (3+0) 3 credits
Selected reading in, and discussion of, topics in human biological evolution.

905 GRADUATE SEMINAR IN ARCHAEOLOGY AND PREHISTORY (3+0) 3 credits
Selected reading in, and discussion of, topics in archeological methods and theory.

906 SEMINAR IN ETHNOLOGY (3+0) 3 credits
Selected problems in ethnology.

913 PROBLEMS IN LANGUAGE (3+0) 3 credits
(See Engl. 913 for description.)

924 LINGUISTIC FIELD METHODS (2 or 0+4) 2 or 4 credits
Lecture and laboratory. Procedures in eliciting, recording, and analyzing language. Students work with informants. May be repeated for laboratory work at no more than 2 credits a semester to a maximum of 6 credits. Prerequisite: Anth. 316 or 420. (Same as Engl. 924.)

937 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.

950 ANTHROPOLOGICAL THEORY (3+0) 3 credits
Major problems and theoretical approaches in anthropology. Prerequisite: Anth. 310 or 312 or 392.

996 PROFESSIONAL PAPER 3 credits
Required of all graduate students who wish to complete the Master of Arts degree under Plan B.

997 THESIS 1 to 6 credits

Inactive Courses

355, 655 CONTEMPORARY LATIN AMERICAN SOCIETY (3+0) 3 credits
369, 669 PEOPLES AND CULTURES OF EUROPE (3+0) 3 credits
410, 710 ETHNOGRAPHIC FIELD METHODS (2+4) 4 credits
430, 730 PROBLEMS IN PHYSICAL ANTHROPOLOGY (3+0) 3 credits

Art (Art)

The Department of Art reserves the right to keep student drawings, paintings, and art work for the permanent collection of the University.

History of the Visual Arts

210 SURVEY OF MEXICAN ART (2+0) 2 credits
A survey of Mexican art and architecture from the pre-Columbian period to modern time.

212 THE PORTRAIT IN WESTERN ART (2+0) 2 credits
A survey of portrait painting and portraiture in sculpture from the Egyptian period through modern time.

216 SURVEY OF THE ART OF WESTERN CIVILIZATION I (2+0) 2 credits
General survey of art of the western world from prehistoric times through the Gothic period.

217 SURVEY OF THE ART OF WESTERN CIVILIZATION II (2+0) 2 credits
General survey of art of the western world from the Renaissance to the present.

314 EVOLUTION OF THE PRINT (2+0) 2 credits
Survey of the historical, technical, and curatorial foundations of printmaking. Field trips to regional print collections are scheduled.

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. May be repeated to a maximum of 6 credits.

417, 717 NINETEENTH CENTURY ART (3+0) 3 credits
The detailed study of the Neo-Classic, Romantic, Realist, and Impressionist movements in Western Art, including aspects of the architectural evolution. Prerequisite: Art 216, 217.

418, 718 TWENTIETH CENTURY ART (3+0) 3 credits
The 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 216, 217.

419, 719* SENIOR/GRADUATE PROBLEMS IN THE HISTORY OF ART 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser. Prerequisite: 419—senior standing; 719—graduate standing.

Drawing

121 DRAWING (0+6) 3 credits
Introduction to concepts of drawing based on visual observation.

221 DRAWING (0+6) 3 credits
Intermediate course designed to develop expression and discipline in drawing with emphasis on materials. Prerequisite: Art 121.

321-322 ADVANCED DRAWING (0+6) 3 credits each
Continuation of Art 121 and 221 offered to develop maturity of expression in a broad range of media. Prerequisite: Art 221.

428-429*
728-729 SENIOR/GRADUATE PROBLEMS IN DRAWING 3 credits each
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of course requirement. Prerequisite: 428-429—12 credits in drawing and senior standing; 728-729—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.

438-439*
738-739 SENIOR/GRADUATE PROBLEMS IN PAINTING 3 credits each
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of the course requirement. Prerequisite: 438-439—18 credits in painting and senior standing; 738-739—graduate standing.

Visual Arts Education

140 INTRODUCTION TO THE VISUAL ARTS 1 to 3 credits
A 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 credit. (Meets Arts and Science humanities requirement. May not be used to satisfy Department of Art major requirement.)

342 TEACHING OF ELEMENTARY ART (0+4) 2 credits
Techniques of handling art media: finger paint, clay, easel paint, chalk, watercolors. Planned especially for students preparing to teach in the elementary schools. Prerequisite: junior standing.

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 pre-student teaching experience. Prerequisite: senior standing and completion of art department major requirements. (Same as S.Ed. 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.

408-409*
708-709 INDIVIDUAL STUDIES 1 to 3 credits each
Individual studies in the areas of two- or three-dimensional work and art history.

Visual Arts Communication

250 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.

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
A 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
A history of the film from the introduction of sound with specific emphasis to particular time blocks and possible social psychological relevance and/or influence. May be repeated to a maximum of 6 credits.

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 250.

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. May be repeated to a total of 6 credits. Prerequisite: Art 256 or 257.

403 POST GRADUATE ORIENTATION (1+2) 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 350-351.

Sculpture

163 SCULPTURE (0+6) 3 credits
Introduction to the concepts of three dimensional composition.

263 SCULPTURE (0+6) 3 credits
Intermediate course in sculpture emphasizing processes, concepts, and materials. Prerequisite: Art 163.

363-364 SCULPTURE (0+6) 3 credits each
Individual concepts of sculptural form with emphasis on personal development. Prerequisite: Art 263.

463-464 ADVANCED SCULPTURE (0+6) 3 credits each
Advanced concepts of sculptural form and individual problem solving. Prerequisite: Art 363-364.

*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.

468-469*
768-769 SENIOR/GRADUATE PROBLEMS IN SCULPTURE
3 credits each
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of the course requirement. Prerequisite: 468-469—18 credits in sculpture and senior standing; 768-769—graduate standing.

Ceramics

175 CERAMICS (1+4) 3 credits
Introduction to ceramics emphasizing characteristics of various clay bodies.

275 CERAMICS (1+4) 3 credits
Intermediate course concerning history, materials, methods, and techniques with special attention to sculptural aspects. Lecture-laboratory method is employed with emphasis on student research. Prerequisite: Art 175.

375-376 CERAMICS (0+6) 3 credits each
Continuation of Art 275 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 275.

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.

478-479*
778-779 SENIOR/GRADUATE PROBLEMS IN CERAMICS
3 credits each
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of course requirement. Prerequisite: 478-479—18 credits in ceramics and senior standing; 778-779—graduate standing.

Printmaking

185 PRINTMAKING (0+6) 3 credits
Introduction to printmaking emphasizing basic techniques and processes.

285 PRINTMAKING (0+6) 3 credits
Studio course concerned with professional printmaking processes: intaglio, relief, lithography, and serigraphy. Prerequisite: Art 185.

381 RELIEF PRINT AND LETTERPRESS PROCESS
(0+4) 2 credits
Use of the relief block in combination with type. Emphasis on letterpress techniques in the making of broadsides, pamphlets, and book. Prerequisite: Art 285.

383-384 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 285.

483-484
783-784 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.

488-489*
788-789 SENIOR/GRADUATE PROBLEMS IN PRINTMAKING
3 credits each
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of the course requirement. Prerequisite: 488-489 — 18 credit hours in printmaking and senior standing; 788-789 — graduate standing.

Crafts

191 CRAFTS (1+4) 3 credits
Introduction to design principles in relation to utilitarian purposes. Lecture-laboratory method concerning history, materials, and methods of various crafts.

292 STITCHERY (0+6) 3 credits
Basic stitchery techniques used to create banners, hangings, and three-dimensional forms, including dollmaking. Investigates uses and combination of fabrics, yarns, leathers, and related materials.

293 JEWELRY (0+6) 3 credits
Theories of jewlery design and fabrication applied to specific problems utilizing techniques such as centrifugal casting, vacuum casting, welding, and soldering.

296 TEXTILE DESIGN I (0+6) 3 credits
An exploration of the design of hand printed textiles with emphasis on the interrelationship of techniques and materials. Introductory experiences in tie and block dye, block print, silk screen, and batik.

297 TEXTILE DESIGN II (0+6) 3 credits
Advanced problems in textile design involving the combination of dyeing and printing processes; emphasis on experimental use of materials.

392 STITCHERY (0+6) 3 credits
Use of stitchery and stitchery related materials as tools toward exploration, development, and construction in soft objects: quilts, wall hangings, figures, and environments. Prerequisite: Art 292.

393 JEWELRY (0+6) 3 credits
Jewelry design and fabrication with emphasis on specific processes and development of individual concepts. Prerequisite: Art 293.

498-499
798-799 SEMINAR IN THE VISUAL ARTS 1 to 3 credits each
To encourage the student of art to synthesize his formal training and to integrate his specialization into the framework of the liberal arts. Prerequisite: senior or graduate standing. May be taken to a maximum of 6 credits.

Inactive Courses

105 DESIGN (0+4) 2 credits
115 ART APPRECIATION (2+0) 2 credits
215 SURVEY OF PRIMITIVE ART (2+0) 2 credits
218 SURVEY OF ORIENTAL ART (2+0) 2 credits
303-304 ART STRUCTURE AND PICTORIAL COMPOSITION
(0+4) 2 credits each
315 RENAISSANCE ART (3+0) 3 credits
316 BAROQUE ART (3+0) 3 credits
416, 716 HISTORY OF AMERICAN ART (3+0) 3 credits
258-259 COMMERCIAL ART (0+6) 3 credits each
358-359 ADVANCED COMMERCIAL ART (0+6) 3 credits each

Biochemistry (B.Ch.)

120 AGRICULTURAL CHEMICALS (3+3) 4 credits S
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.

271 BIOCHEMISTRY FOR LIFE SCIENCES I (3+3) 4 credits
Theory and mechanisms of organic chemistry and principles of physical chemistry as each relates to biochemistry. Approved for but not limited to those majoring in health sciences. Prerequisite: Chem. 172.

272 BIOCHEMISTRY FOR LIFE SCIENCES II (3+3) 4 credits
Continuation of 271 with emphasis on metabolism of living systems. Prerequisite: B.Ch. 271.

*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.

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in (a) biochemistry; (b) entomology.

301 INTRODUCTORY BIOCHEMISTRY (3+0) 3 credits
Introduction to chemistry of living systems emphasizing their major metabolic activities. Prerequisite: Chem. 142.

303 INTRODUCTORY BIOCHEMISTRY LABORATORY (0+3) 1 credit
Selected experiments introducing methodology used in investigating the chemistry of living systems. Prerequisite or corequisite: B.Ch. 301.

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
705-706 GENERAL BIOCHEMISTRY (3+0) 3 credits each F-S
Chemistry of biological systems emphasizing biosynthesis, metabolic role and degradation of proteins, carbohydrates, lipids, nucleic acids, vitamins, hormones, and other compounds related to the life process. Prerequisite: Chem. 244 and 235 or 334; a course in biology. Recommended: Chem. 354 and additional biology. (Same as Chem. 471-472.)

407-408
707-708 GENERAL BIOCHEMISTRY LABORATORY (0+6) 2 credits each F-S
Laboratory work which accompanies B.Ch. 405-406. Prerequisite or corequisite: B.Ch. 405-406. (Same as Chem. 473-474.)

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 and 235 or 334; 354-355 and a course in biology.

412, 712 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.

450 RADIOTRACER TECHNIQUES (1+3) 2 credits
An introduction to the use of radioactive materials as tracers with special reference to agricultural applications. Prerequisite: Chem. 235 or 333.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) biochemistry, (b) entomology.

900 GRADUATE SEMINAR (1+0) 1 credit
Research work and reports on topics of interest in (a) biochemistry, (b) entomology.

910 RADIOTRACER METHODOLOGY (1+3) 2 credits
The use of radioactive materials as tracers. Prerequisite: Chem. 235 or 333. Recommended: B.Ch. 406 or 410 and Math. 181. (Not available for students having completed B.Ch. 450.)

911-912 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.

921 STRUCTURAL BIOCHEMISTRY (3+0) 3 credits
A study of structural relationships prevalent in natural products of biological significance including an examination of the methods used for their elucidation. Prerequisite: B.Ch. 406 or 410.

922 METABOLISM (3+0) 3 credits
A consideration at the molecular level of selected anabolic and catabolic processes. Prerequisite: B.Ch. 406 or 410.

931 PHYSICAL BIOCHEMISTRY (3+0) 3 credits
The physical chemistry of biochemical systems. Prerequisite: B.Ch. 406 or 410, Chem. 354. Chem. 448 recommended.

940 ENZYMOLOGY (3+0) 3 credits
A study of enzyme kinetics, specificity, mechanisms, inhibition, structure, formation, and control. Prerequisite: B.Ch. 406 or 410.

951 NUCLEIC ACIDS (3+0) 3 credits
A study of structure, synthesis, isolation, and biological role of DNA and RNA and enzymes relating to these compounds. Prerequisite: B.Ch. 406 or 410.

952 MITOCHONDRIAL STRUCTURE AND FUNCTION (3+0) 3 credits
Mitochondria including respiratory chain, phosphorylation, compartmentation, metabolic control, ultra-structure, ion translocation, energy coupled changes in volume, and structure and theories of biogenesis. Prerequisite: B.Ch. 406 or 410.

960 MINERAL METABOLISM (3+0) 3 credits
The biochemistry of the macro- and micronutrient trace elements with some reference to toxic and nonmetabolic elements. Prerequisite: B.Ch. 406 or 410.

980 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in (a) biochemistry, (b) entomology. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits in any area.

997 THESIS 1 to 6 credits
Thesis may be written in area of (a) biochemistry, (b) entomology.

999 DISSERTATION 1 to 24 credits.

Inactive Courses

970 STEROIDS (3+0) 3 credits

Biology (Biol.)

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 I (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 prerequsite 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.

210 BIOLOGICAL PRINCIPLES OF CONSERVATION (2+0) 2 credits
Animal, plant, soil, and water sources of our country and the biological principles relating to intelligent usage.

240 HEREDITY, MAN, AND ENVIRONMENT (3+0) 3 credits
Study of 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 nonbiology majors. Prerequisite: one course in biology.

270 CELLULAR BIOLOGY I (2+0) 2 credits
Study of cellular phenomena which provide the foundation of life. Cell chemistry and physiology, cell organization, membrane systems, and organelles. Prerequisite: Biol. 101 or one year of chemistry.

280 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, 102.

340, 640 PRINCIPLES OF GENETICS (3+0) 3 credits
Introduction to features of heredity and variation among plants and animals. Prerequisite: Biol. 101, 102.

341, 641 GENETICS LABORATORY (0+3) 1 credit
Optional course to accompany Biol. 340.

342, 642 DISCUSSION IN GENETICS (1+0) 1 credit
Small group discussions of principles of genetics to accompany Biol. 340.

350, 650 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.

351, 651 MICROBIOLOGY (2+0) 2 credits
Bacteria and related microorganisms. Morphology, physiology, classification, economic, and medical importance considered. Prerequisite: Biol. 101. Must be accompanied by Biol. 352, 652.

355, 655 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.

371, 671 CELLULAR BIOLOGY II (2+0) 2 credits
Cellular organization, differentiation, biological specificity. Genetic organizaiton, storage, and transfer of information. Prerequisite: Biol. 270.

401, 701 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. May be repeated to a maximum of 6 credits.

405, 705 HISTORY OF BIOLOGY (3+0) 3 credits
Study of the concepts and contributors of major historical importance in biology. Prerequisite: at least two years of course work in biology.

410, 710 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, 715 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. 351 and B.Ch. 301.

420, 720 LIMNOLOGY (2+0) 2 credits
Biological, chemical, and physical characteristics of aquatic environment, with particular emphasis on application of limnologic principles to fisheries biology. Prerequiste: Chem. 101, 102; Zool. 333, 359, 360; and a course in qualitative chemical analysis. (Chem. 122 is recommended).

421, 721 LIMNOLOGY LABORATORY (0+9) 3 credits
Optional laboratory to accompany Biol. 420. Prerequisite: beginning chemistry and one field course in zoology.

430, 730 ELECTRON MICROSCOPY (2+0) 2 credits
Study of electron microscope physics and operation and the techniques of biological specimen preparation. Prerequisite: Biol. 270 or Zool. 368.

431, 731 ELECTRON MICROSCOPY LABORATORY (0+6) 2 credits
Laboratory exercises in biological techniques of electron microscopy. Prerequisite: Biol. 270 or Zool. 368.

450, 750 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.

452, 752 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. 340 or 350.

480, 780 BIOLOGICAL SURVEY TECHNIQUES 2 credits SU
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.

482, 782 TROPICAL ECOLOGY (3+0) 3 credits SU
The ecology of tropical organisms, communities, and ecosystems; emphasizing their unique characteristics and the causal factors involved. Prerequisite: Biol. 280 or equivalent.

483, 783 TROPICAL ECOLOGY LABORATORY (0+6) 2 credits SU
Laboratory to accompany Biol. 482. Directed field studies of selected populations, communities, and ecosystems.

915-916 TOPICS IN POLLUTION ECOLOGY (3+0) 3 credits
An examination in depth of selected areas of pollution ecology, i.e., energy and power, mineral cycles, or air pollutants. May be repeated to a maximum of 6 credits.

935 STUDY IN ELECTRON MICROSCOPY (0+9) 3 credits
Original research problems involving the use of the electron microscope in biological investigations.

937 SUPERVISED TEACHING IN COLLEGE BIOLOGY (1+0) 1 credit
Methods and creative approaches for improving the quality of undergraduate teaching of biological science.

940 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. 340, Chem. 244 or 271.

951 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. 351.

952 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.

966 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: Bot. 355 or Zool. 346 or 446.

983 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.

984 TOPICS IN ECOLOGY (3+0) 3 credits
Critical analysis of selected ecological topics. Offered on a continuing basis; topics and instructors vary. May be repeated to a maximum of 6 credits. Prerequisite: Biol. 280.

987 ECOLOGY OF DECOMPOSITION (2+3) 3 credits
Study of organic detritus turnover, mineral cycling as controlled by decomposition rates and factors influencing these rates. Prerequisite: Biol. 280.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Botany (Bot.)

104 SURVEY OF THE PLANT KINGDOM (2+0) 2 credits
Structure and life cycles of representative types of algae, fungi, mosses, ferns, gymnosperms, and angiosperms.

105 SURVEY OF THE PLANT KINGDOM LABORATORY (0+6) 2 credits
Optional course to accompany Bot. 104.

207 ECONOMIC BOTANY (2+0) 2 credits SU
Principal plants used for drugs, fibers, oil, foods, and industrial uses. Importance of exploration for new plant sources. Prerequisite: Biol. 101 or 202.

320, 620 SYSTEMATIC BOTANY OF FLOWERING PLANTS (3+0) 3 credits
Study of the morphology, taxonomy, and evolution of the principal plant orders, families and general. Emphasis on morphological and evolutionary adaptations. Local flora recognition included. Prerequisite: Biol. 101 and 202.

321, 621 SYSTEMATIC BOTANY OF FLOWERING PLANTS LABORATORY (0+6) 2 credits
Optional laboratory to accompany Bot. 320, 620.

331, 631 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 102 and 202.

345, 645 ECOLOGY OF XEROPHYTES (2+3) 3 credits
Study of ecology of desert plant species and communities; including physiologic and morphologic adaptations and functional relationships. Prerequisite: Biol. 101 and 202.

355, 655 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, 656 PLANT PHYSIOLOGY LABORATORY (0+3) 1 credit
Optional laboratory to accompany Bot. 355, 655.

364, 664 INTRODUCTORY MYCOLOGY (2+6) 4 credits
Study of the classification, morphology, and reproduction of fungi. Prerequisite: Biol. 101 and 202.

464, 764 SYSTEMATICS AND ECOLOGY OF FUNGI (1+6) 3 credits
A field and laboratory oriented course dealing with the collection, isolation, and identification of fungi from various habitats emphasizing their environmental relationship. Requires a mycological collection. Prerequisite: Bot. 364 with Biol. 280 recommended.

491-492, 493-494
791-792, 793-794 ADVANCED BOTANY 1 to 3 credits each
Special problems in some field of botany. May be repeated to a maximum of 8 credits. Prerequisite: equivalent of two years of botany.

495-496
795-796 SEMINAR IN BOTANY 1 credit each
Student presentation and discussion of topics of a botanical nature. May be repeated for credit.

922 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.

951-952
953-954 GRADUATE PROBLEMS IN BOTANY 1 to 3 credits each
Special problems for graduate study in some field of botany. May be repeated to a maximum of 6 credits. Prerequisite: graduate standing.

955 PROBLEMS IN THE PHYSIOLOGY OF GROWTH (1+3) 2 credits
Hormonal and environmental control of plant growth and germination. A series of lectures with an opportunity to carry out research with the facilities of the Desert Research Institute. Prerequisite: graduate standing.

980 PHYSIOLOGICAL ECOLOGY (2+0) 2 credits
Review of recent literature concerned with environment influences on the growth and development of higher plants. Prerequisite: Biol. 280, Bot. 355, physiological chemistry or biochemistry.

982 VEGETATION ANALYSIS (2+3) 3 credits
Methods and approaches of vegetation analysis. Prerequisite: Biol. 280, Bot. 322.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Inactive Courses

380, 680 INTRODUCTION TO PLANT ECOLOGY (3+0) 3 credits
381, 681 PLANT ECOLOGY LABORATORY (0+3) 1 credit
964 ADVANCED MYCOLOGY (1+6) 3 credits

Business Administration (B.A.)

325 LEGAL ENVIRONMENT (3+0) 3 credits F
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.

373 BUSINESS LAW I (3+0) 3 credits F,S
Nature, origin, and philosophy of law and procedures. Law of contracts and agency. Prerequisite: junior standing.

374 BUSINESS LAW II (3+0) 3 credits F,S
Continuation of B.A. 373. Law of partnerships, corporations, sales, property, negotiable instruments, insurance, and bankruptcy. Prerequisite: junior standing and B.A. 373.

915 LEGAL ENVIRONMENT OF BUSINESS (3+0) 3 credits F
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 MBA first-year core.)

Chemical Engineering (Ch.E.)

101 INDUSTRY ORIENTATION LECTURES (1+0) 1 credit F
(See Min.E. 101 for description.)

102 INTRODUCTION TO METALLURGICAL AND CHEMICAL PROCESSES (2+0) 2 credits S
An introductory survey of integrated industrial porcesses of the chemical and metallurgical industries. (Same as Met.E. 102.)

232 PRINCIPLES OF METALLURGICAL AND CHEMICAL ENGINEERING (2+3) 3 credits S
(See Met.E. 232 for description.)

301 CHEMICAL OR METALLURGICAL INDUSTRY SEMINAR 1 credit F
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.)

303 CHEMICAL POLLUTION ABATEMENT (2+2) 3 credits F
Chemical pollution problems arising from an industrial society are defined and studied. Solutions to these problems are considered through chemical engineering approaches. Prerequisite: Chem. 102.

332, 632 UNIT PROCESSES OF CHEMICAL METALLURGY I (3+0) 3 credits S
(See Met.E. 332 for description.)

361, 661 THERMODYNAMICS (4+0) 3 or 4 credits F
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 F
(See Met.E. 423 for description.)

437, 737 UNIT OPERATIONS I (4+0) 4 credits F
Analytical study of unit operations commonly employed in chemical industries. Field trip. Prerequisite: Ch.E. 232. Corequisite: Ch.E. 361.

438, 738 UNIT OPERATIONS II (3+0) 3 credits S
Continuation of Ch.E. 437. Field trip. Prerequisite: Ch.E. 437.

440, 740 KINETICS AND CATALYSIS (2+0) 2 credits S
Study of reaction rates and the factors controlling them. Prerequisite: Chem. 354, Ch.E. 361.

441 UNIT OPERATIONS LABORATORY I (0+3) 1 credit F
Experiments to demonstrate equipment and operations of chemical engineering and to provide practice in technical report writing. Corequisite: Ch.E. 437.

442, 742 UNIT OPERATIONS LABORATORY II (0+6) 2 credits S
Quantitative experiments to illustrate unit operations commonly employed in chemical industries. Corequisite: Ch.E. 438.

451, 751 CONTROL OF PROCESS SYSTEMS (3+0) 3 credits F
Chemical and metallurgical process dynamics and their responses to control systems. Corequisite: Math. 321.

462, 762 THERMODYNAMICS OF IRREVERSIBLE PROCESSES (3+0) 3 credits S
(See Met.E. 462 for description.)

471, 771 TRANSPORT OPERATIONS (3+0) 3 credits F
Mass, momentum, and energy transport phenomena and their application in chemical engineering.

482, 782 CHEMICAL ENGINEERING DESIGN (1+6) 3 credits S
Individual projects in the design of processes and plant components. Corequisite: Ch.E. 438.

483, 783 ADVANCED CHEMICAL ENGINEERING DESIGN (3+0) 3 credits F
Application of advanced mathematics to chemical engineering design. Emphasis upon derivation of differential equations describing physical situations and solution of these equations.

495-496 SPECIAL PROBLEMS 1 to 3 credits each F-S
Individual problems in chemical engineering.

Chemistry (Chem.)

100 THE CHEMISTRY OF MAN'S ENVIRONMENT (3+0) 3 credits
Introductory lecture course for nonscience majors. Chemistry as a human endeavor in man's attempts to understand, control, and modify his environment. Open only to students with no prior college chemistry.

101 GENERAL CHEMISTRY (3+3) 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 (3+3) 4 credits F
Fundamental principles of chemistry including an introduction to descriptive inorganic chemistry. Recommended for students taking more than two years of chemistry. A year of high school chemistry with a grade of C or better is advised.

104 GENERAL CHEMISTRY (3+3) 4 credits S
Continuation of Chem. 103 including an introduction to analytical chemistry. Prerequisite: Chem. 103.

142 INTRODUCTORY ORGANIC CHEMISTRY (3+0 or 3) 3 or 4 credits
Acquaints student 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, 243, 245.

171 LIFE SCIENCE CHEMISTRY I (3+3) 4 credits F,S
General principles of chemistry with emphasis on living systems. Approved for but not limited to those majoring in the health sciences fields. Credit allowed in only one of the following: Chem. 101, 103, 171.

172 LIFE SCIENCE CHEMISTRY II (3+3) 4 credits F,S
Continuation of Chem. 171 including organic chemistry and an introduction to biochemistry. Prerequisite: Chem. 171 or approval of department. Approved but not limited to those majoring in the health sciences fields. Credit allowed in only one of the following: Chem. 142, 172, 243, 245.

243 ORGANIC CHEMISTRY (3+0) 3 credits F
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 S
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 F
Designed to develop laboratory skills and an understanding of the techniques and principles involved in carrying out typical organic reactions. Prerequisite or corequisite: Chem. 243.

246 ORGANIC CHEMISTRY LABORATORY (0+3 or 6) 1 or 2 credits S
Continuation of Chem. 245 but at a more advanced level. Prerequisite or corequisite: Chem. 244 and 245.

250 PHYSICAL PRINCIPLES OF CHEMISTRY (3+0) 3 credits S
General and elementary treatment designed as a survey course for nonmajors. Prerequisite: a year of college chemistry and qualification for elementary calculus. A year of college physics strongly recommended.

291 SCIENTIFIC GLASSBLOWING (0+3) 1 credit F,S SU
Training in glassblowing skills needed by majors in chemistry and physics.

33 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.

334, 634 INSTRUMENTAL ANALYSIS (2+3) 3 credits
A 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.

353-354
653-654 PHYSICAL CHEMISTRY (3+0) 3 credits each F-S
Systematic treatment of the fundamental principles of physical chemistry. Prerequisite: two years of college chemistry, one year of college physics and Math. 182. Chem. 353 is prerequisite to 354.

355, 655 PHYSICAL CHEMISTRY LABORATORY (0+6) 2 credits F
Training in physico-chemical laboratory techniques provided by experimental verification of the principles of physical chemistry. Prerequisite or corequisite: Chem. 353.

357, 657 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. 160 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, 498.

391 SPECIAL PROBLEMS (0+3 or 6) 1 or 2 credits F,S SU
Laboratory course giving training in a field not covered in scheduled courses. Arrangements for problems are made with department chairman. Prerequisite: Chem. 334. May be repeated to a maximum of 2 credits.

415, 715 ADVANCED INORGANIC CHEMISTRY (3+0) 3 credits F
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.

442, 742 ADVANCED ORGANIC CHEMISTRY (3+0) 3 credits
A study of 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, 743 QUALITATIVE ORGANIC ANALYSIS (1+6) 3 credits
Correlation of physical and chemical properties with structure developed as a means for the systematic identification of organic compounds. Prerequisite: Chem. 244, 246.

450, 750 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. 221 or equivalent.

451, 751 THE ELEMENTARY PHYSICAL CHEMISTRY OF MACROMOLECULES (3+0) 3 credits
Survey of 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.

456, 756 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
771-772 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
773-774 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.

497-498 SENIOR PROBLEMS (0+6) 2 credits each F
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.

911 THEORETICAL INORGANIC CHEMISTRY (3+0) 3 credits
Atomic structure, chemical bonding, and molecular structure; applications of group theory to inorganic spectroscopy. Prerequisite: Chem. 415. Given alternate years.

912 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. Given alternate years.

914 SPECIAL TOPICS IN INORGANIC CHEMISTRY (3+0) 3 credits
Study of selected topics of current interest. Prerequisite: Chem. 415. May be repeated only in different subject areas to a maximum of 6 credits.

940 ADVANCED ORGANIC SYNTHESIS (3+0) 3 credits
Survey of reactions of value in synthesis. Prerequisite: Chem. 742.

941 ADVANCED ORGANIC STRUCTURE ELUCIDATION (3+0) 3 credits
A study of methods used for structure elucidation.

942 THEORETICAL ORGANIC CHEMISTRY (3+0) 3 credits
Study of reaction mechanisms, reactivity, linear free energy relationships, and intermediates. Prerequisite: Chem. 442.

943 SPECIAL TOPICS IN ORGANIC CHEMISTRY (3+0) 3 credits
Study of topics of current interest in organic chemistry. May be repeated only in different subject areas to a maximum of 6 credits. Prerequisite: Chem. 442.

950 ADVANCED PHYSICAL CHEMISTRY (3+0) 3 credits
Thermodynamics, kinetic theory of gases, quantum theory, statistical mechanics, and related subjects. Prerequisite: Chem. 450 or equivalent.

951 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (3+0) 3 credits
Study of selected topics of current interest. Prerequisite: Chem. 950. May be repeated only in different subject areas to a maximum of 6 credits.

952 CHEMICAL KINETICS (3+0) 3 credits
Study of rate processes, the factors influencing reaction rates and the correlation of kinetics and mechanisms of reaction. Prerequisite: Chem. 450 or equivalent.

953 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.

955 STATISTICAL THERMODYNAMICS (3+0) 3 credits
Molecular approach to the study of fundamental thermodynamic energy relationships. Prerequisite: Chem. 950.

957 QUANTUM CHEMISTRY (3+0) 3 credits
Intensive study of the general aspects of quantum mechanics and its application to chemistry. Prerequisite: Chem. 950.

971-972 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. 971 is prerequisite for 972.

973 EXPERIMENTAL TECHNIQUES IN BIOCHEMISTRY (1+6) 3 credits
Experiments in the isolation, purification and characterization of biological materials. Prerequisite: Chem. 472 and 474.

974 SPECIAL TOPICS IN BIOCHEMISTRY (3+0) 3 credits
Study of selected topics of current interest. Prerequisite: Chem. 472.

980-981 INDEPENDENT STUDIES 1 to 6 credits each
May be repeated to a maximum of 12 credits.

985-986
987-988 SEMINAR (1+0) 1 credit each
May be repeated to a maximum of 4 credits. Prerequisite: Chem. 388.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Inactive Courses

271 PHYSIOLOGICAL CHEMISTRY (3+0 or 3) 3 or 4 credits F
435, 735 RADIOCHEMISTRY (2+0 or 3) 2 or 3 credits S

Civil Engineering (C.E.)

101 BASIC DRAFTING (0+3) 1 credit F
Course intended for students who have not had mechanical drawing in high school, or its equivalent.

140 GRAPHICAL ANALYSIS (0+6) 2 credits F,S
Application of mathematical principles and graphic arts to the creation of engineering graphs, charts and nomographs. 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 SU
Preparation of written reports based on summer cooperative program assignments. Required of all students in the Nevada Highway Department Cooperative Program.

241 ENGINEERING MEASUREMENTS (2+3) 3 credits F
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 S
Continuation of C.E. 241 leading into detailed studies of photogrammetry, location of tansportation 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 F
Computational methods applied to simple engineering problems. Introduction to electronic computers. Prerequisite: elementary calculus.

244 CIVIL ENGINEERING II (2+3) 3 credits S
Principles of planning, statistics, economy, mapping, computer programming, and design applied to the development of typical engineering projects. Prerequisite: C.E. 241, 243.

246 CONSTRUCTION MATERIALS (3+0) 3 credits S
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 F,S
Preparation of written reports and/or delivery of oral presentations. Guest lectures. May be repeated to a maximum of 3 credits.

364, 664 ENGINEERING HYDROLOGY (2+0) 2 credits S
Fundamental principles of hydrology for engineers. Quantitative hydrology; application of statistics to prediction of runoff; ground water flow. Prerequisite: C.E. 367.

366, 666 HIGHWAY ENGINEERING I (3+0) 3 credits F
Study of the engineering problems encountered in the planning and design of highway transportation facilities. Prerequisite: C.E. 241, 246, and 388.

367, 667 ELEMENTARY FLUID MECHANICS (3+0) 3 credits F,S
Study of the behavior of fluids at rest and in motion. Prerequisite: Math. 281, M.E. 241.

368 FLUID MECHANICS LABORATORY (0+3) 1 credit F,S
Exemplifies the principles studied in C.E. 367. Prerequisite or corequisite: C.E. 367.

369 NONMETALLIC TESTING LABORATORY (0+3) 1 credit F
Study of the 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 F,S
Study of the stress-strain relationships of structural elements under load. Prerequisite: M.E. 241.

373 STRENGTH OF MATERIALS LABORATORY (0+3) 1 credit F,S
Supervised study of problems relating to C.E. 372. Corequisite: C.E. 372.

374 METALS TESTING LABORATORY (0+3) 1 credit S
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 F
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, 688 ENGINEERING ECONOMY, PROBABILITY, AND STATISTICS (2+0) 2 credits F
Fundamental principles of engineering economy, statistics, probability distributions, and regression analysis with civil engineering applications. Prerequisite: junior standing.

390, 690 WATER QUALITY CONTROL (2+3) 3 credits S
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, 701 CITY AND REGIONAL PLANNING I (2+3) 3 credits F
Theories and methods involved in area planning; importance of physical planning in local government; zoning and land uses; estimating population trends; subdivison planning. Social and economic implications assessed from the standpoint of the engineer. Prerequisite: senior standing.

402, 702 CITY AND REGIONAL PLANNING II (3+0) 3 credits S
Further studies based on C.E. 401, 701. Prerequisite: C.E. 401, 701.

410, 710 HYDRAULICS OF OPEN CHANNELS (3+0) 3 credits F,S
Advanced study of the flow of water through open channels. Prerequisite: C.E. 367.

415, 715 WATER RIGHTS (3+0) 3 credits F,S
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, 729 TIMBER STRUCTURES (2+0 or 3) 2 or 3 credits F,S
Fundamentals of design of timber structures and application to simple structures. Prerequisite: C.E. 381.

451, 751 TRANSPORTATION ENGINEERING (3+0) 3 credits F,S
Study of the 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, 752 INTRODUCTION TO TRAFFIC ENGINEERING (2+3) 3 credits F,S
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.

473, 773 DECISION MAKING TECHNIQUES (3+0) 3 credits F,S
Introduction to linear programming, network analysis, dynamic programming, and other operations research techniques, classical optimization, and mathematical methods of operations research. Prerequisite: Math. 160 and C.E. 388.

479, 779 EARTHQUAKE ENGINEERING (3+0) 3 credits F
(See Geol. 479 for description.)

483, 783 STRUCTURAL ANALYSIS II (3+0) 3 credits S
The classical methods of structural analysis for static and dynamic loads and structural stability including matrix formulation for application of electronic computers. Prerequisite: C.E. 481.

484, 784 STRUCTURAL DESIGN (2+6) 4 credits S
Comprehensive and total problems in the structural design of typical engineering structures. Prerequisite: C.E. 481.

485, 785 REINFORCED CONCRETE FUNDAMENTALS (3+0) 3 credits S
Design and analysis of reinforced concrete members by elastic and inelastic procedures. Prerequisite: C.E. 369, 481.

486, 786 REINFORCED CONCRETE DESIGN (2+3) 3 credits F,S
A continuation of C.E. 485 with emphasis upon the total design of reinforced concrete structures. Prerequisite: C.E. 485.

489, 789 WATER RESOURCES ENGINEERING I (2+3) 3 credits F
Study of the 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, 790 WATER RESOURCES ENGINEERING II (3+0) 3 credits S
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. 489.

491, 791 CONTRACTS, SPECIFICATIONS AND COSTS (3+0) 3 credits S
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, 792 SOIL MECHANICS (2+3) 3 credits F
Introductory study of the structure of soil and its reaction to loads and deformations. Prerequisite: C.E. 372.

493, 793 FOUNDATION ENGINEERING (3+0) 3 credits F,S
Critical study of current procedure for design and construction of foundations and earth structures. Prerequisite: C.E. 492.

495 SPECIAL PROJECTS I 1 to 3 credits F,S
Study and/or experimentation in areas of special interest to the student.

496 SPECIAL PROJECTS II 1 to 3 credits F,S
Study and/or experimentation in areas of special interest to the student.

498, 798 WATER QUALITY MANAGEMENT (3+0) 3 credits F
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 near optimal water quality management for selected water resources systems. Prerequisite: C.E. 390.

499, 799 ADVANCED SANITARY ENGINEERING I (3+0) 3 credits F,S
Unit operations and processes of wastewater treatment, sedimentation, filtration, activated sludge, lagoons. Sludge treatment and disposal. Prerequisite: C.E. 390.

911 WATER RESOURCES SYSTEMS ANALYSIS (3+0) 3 credits F,S
Application of systems analysis methods to the planning and management of water resource systems. Prerequisite: C.E. 364.

912 WATER RESOURCES PROJECTS (3+0) 3 credits F,S
Engineering requirements for the economic and beneficial uses of water. Prerequisite: C.E. 364.

914 ADVANCED WATER RESOURCES TOPICS 1 to 4 credits F,S
Advanced studies in the field of water resources not included in other courses. Prerequisite: C.E. 367.

917 STATISTICAL METHODS IN HYDROLOGY (3+0) 3 credits F,S
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.

918 ADVANCED HYDROLOGY I (3+0) 3 credits F,S
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.

920 ADVANCED STRUCTURAL ANALYSIS AND DESIGN I (3+1) 3 credits F
Advanced methods and problems in structural analysis and design. Prerequisite: C.E. 483, 484, 485.

921 ADVANCED STRUCTURAL ANALYSIS AND DESIGN II (3+0) 3 credits S
Continuation of C.E. 920. Prerequisite: C.E. 920.

922 PLASTIC DESIGN IN STEEL (2+0) 2 credits F,S
Study of the design and behavior of structural steel frames in the inelastic stress range. Prerequisite: C.E. 481, 483, 484.

923 ADVANCED REINFORCED CONCRETE (3+0) 3 credits F,S
Special problems in reinforced concrete. Prerequisite: C.E. 483, 486.

924 APPLIED ELASTICITY I (3+0) 3 credits F
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, Math 221.

925 APPLIED ELASTICITY II (3+0) 3 credits S
Continuation of C.E. 924 with emphasis on the variation principles of mechanics including the principles of stationary potential and complimentary energy, Hamilton's principle and the methods of Ritz and Galerkin. Prerequisite: C.E. 924.

926 THEORY OF PLATES (3+0) 3 credits F
Study of 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, Math 221.

927 THEORY OF SHELLS (3+0) 3 credits S
Study of 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. 924 or 926.

930 DYNAMICS OF STRUCTURES (3+0) 3 credits F
Analysis of single and multidegree of freedom systems for time dependent loadings, with particular attention to earthquake exitation and response spectrum techniques. Prerequisite: C.E. 481.

931 HIGHWAY AND AIRPORT PAVEMENTS (2+3) 3 credits F,S
Theory and practice in the design, construction, and maintenance of flexible and rigid pavements. Prerequisite: C.E. 451.

932 ASPHALT PAVEMENT DESIGN (0+6) 2 credits F,S
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 and senior standing.

940 ADVANCED SOIL MECHANICS I (3+0) 3 credits F
Study of the principles of soil mechanics as applied to the foundations of structures. Prerequisite: C.E. 492.

941 ADVANCED SOIL MECHANICS II 1 to 4 credits S
Study of principles of soil mechanics as applied to stability of earth structures. Prerequisite: C.E. 940.

950 GRADUATE SEMINAR 1 to 3 credits F,S
Study and discussion of important new developments in particular fields of civil engineering. Prerequisite: graduate standing in civil engineering.

952 ADVANCED SANITARY ENGINEERING II 1 to 3 credits F,S
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. 951.

960 CONSTRUCTION ENGINEERING (3+0) 3 credits F,S
Construction practices and methods. Job planning and scheduling. Selection of equipment. Problems of management and related topics. Prerequisite: C.E. 491.

961 PLANNING AND SCHEDULING OF CONSTRUCTION PROJECTS (2+0) 2 credits F,S
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.

971-972 SPECIAL ENGINEERING PROBLEMS
1 to 3 credits each F-S
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. May be repeated to a maximum of 6 credits.

996 PROFESSIONAL PAPER 1 to 3 credits, F,S SU
Report, of professional quality, based on engineering experience and independent study or investigation. May be required for completion of plan B, M.S. program.

997 THESIS 1 to 6 credits F,S

999 DISSERTATION 1 to 24 credits F,S SU

Inactive Courses

347, 647 ENGINEERING REPORTS (1+0) 1 credit F
416, 716 EMINENT-DOMAIN LAW AND CONDEMNATION PROCEDURE (2+0) 2 credits F
419, 719 SNOW AND ICE SCIENCE (2+0) 2 credits F,S
420, 720 ADVANCED PORTLAND CEMENT CONCRETE (2+3) 3 credits F,S
471, 771 MATHEMATICAL METHODS IN CIVIL ENGINEERING (1+0 per credit) 1 to 3 credits F
903 AIRPORT PLANNING AND DESIGN (3+3) 3 credits F,S
919 ADVANCED HYDROLOGY II 1 to 4 credits S
928 EXPERIMENTAL STRESS ANALYSIS (2+3) 3 credits F,S
953 AIR POLLUTION CONTROL 2 credits F,S

Civil Engineering Technology (C.E.T.)

110 ARCHITECTURAL DESIGN I (2+3) 3 credits F
Elementary work in architectural design. Development of architectural logic, planning, and aesthetics with relation to structures.

112 ARCHITECTURAL DESIGN II (2+3) 3 credits S
Continuation of C.E.T. 110. One designated field trip may be required during the semester. Prerequisite: C.E.T. 110.

131 PLANE SURVEYING II (1+6) 3 credits S
Route surveys; design of spiral curves, including field work, computation of earthwork, highway surveys, including mass diagrams. Prerequisite: C.E.T. 30, Math 111.

132 PLANE SURVEYING III (1+6) 3 credits F
Advanced course in surveying: subdivision plats, mapping, and record surveys.

214 ARCHITECTURAL DESIGN III (1+6) 3 credits F
Advanced work in architectural design. Development of architectural logic, planning, and aesthetics with relation to structures. Prerequisite: C.E.T. 112.

216 ARCHITECTURAL DESIGN IV (1+6) 3 credits S
Continuation of C.E.T. 214. One designated field trip may be required during the semester. Prerequisite: C.E.T. 214.

220 CONSTRUCTION AND WORKING DRAWINGS I (1+6) 3 credits F
Study of construction and detailed working drawings of elementary wood and steel structures. Application of building codes. Prerequisite: M.E.T. 112.

221 CONSTRUCTION AND WORKING DRAWINGS II (1+6) 3 credits S
Continuation of C.E.T. 220 covering more advanced topics. Prerequisite: C.E.T. 220.

225 ARCHITECTURAL DELINEATION (0+6) 2 credits S
Three-dimensional representation of structures with various drawing media which enable the student to express his architectural ideas. Prerequisite: M.E.T. 112.

235 MATERIALS TESTING I (1+3) 2 credits F
Laboratory procedures and experiments associated with the testing of soils.

236 MATERIALS TESTING II (1+3) 2 credits S
Laboratory procedures and experiments associated with the testing of materials used in construction.

250 TRANSPORTATION TECHNOLOGY (3+0) 3 credits F
History of development and design of transportation facilities (highways, airports, pipelines, and railroads). Prerequisite: C.E.T. 131.

260 COST ESTIMATES AND SPECIFICATIONS (2+0) 2 credits S
Elementary presentation of the engineering aspects of contracts, specifications, cost estimation, and accounting.

Inactive Courses

240 APPLIED MATHEMATICS OF CONSTRUCTION (2+0) 2 credits F
244 WATER WORKS, SEWAGE AND HYDROLOGY (4+0) 4 credits S
251 TRAFFIC TECHNOLOGY (3+3) 4 credits S
255 CIVIL ENGINEERING DRAFTING-DESIGN (1+6) 3 credits F,S
266 STRUCTURAL DRAFTING-DESIGN (1+6) 3 credits F,S

Committee on the Philosophy of Inquiry (C.O.P.I.)

Interdisciplinary Courses

410, 710 SEMINAR IN SOCIAL ECONOMICS (3+0) 3 credits
(See Ec. 410 for description.)

465, 765 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3+0) 3 credits
(See Phil. 465 or Phys. 465 for description.)

908 PHILOSOPHICAL PSYCHOLOGY (3+0) 3 credits
(See Psy. 908 for description.)

913 PROBLEMS IN LANGUAGE (3+0) 3 credits
(See Engl. 913 for description.)

923 SEMINAR IN POLITICAL THEORY (3+0) 3 credits
(See P.Sc. 923 for description.)

Criminal Justice (C.J.)

110 INTRODUCTION TO CRIMINAL JUSTICE (3+0) 3 credits F
Introduction to the history, philosophy, and functions of community, state, and federal agencies or services involved in criminal justice. Chronological process of procedures from incident to final disposition. Special attention to the role and involvement of both law enforcement agencies and the individual officer.

112 POLICE ORGANIZATION AND ADMINISTRATION (3+0) 3 credits S
Principles of organization and administration of law enforcement agencies. Survey of state and federal enforcement agencies. In-depth study of municipal police agencies including agency goals, policies, functions, and implementation through recruitment, training, and distribution of manpower.

120 CRIMINAL LAW (3+0) 3 credits F
Substantive criminal law with particular attention to the elements of crime, intent, attempts, search and seizure, and the laws of arrest. Relation of criminal law to working police officer and rights and duties of both citizen and officer under criminal law.

130 PROFESSIONAL PAPER, RESEARCH PROBLEM 2 credits F,S

214 PRINCIPLES OF POLICE PATROL TECHNIQUES (3+0) 3 credits S
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.

224 PRINCIPLES OF CRIMINAL INVESTIGATION (3+3) 4 credits F
Fundamental principles of investigating a criminal incident including crime scene work, interviewing of witnesses, collection and analysis of physical evidence, and case preparation for court presentation. Emphasis on team work with related agencies. Interrogration techniques surveyed with special emphasis on current federal guidelines. Prerequisite: sophomore standing. Open only to criminal justice majors.

226 PREVENTION AND CONTROL OF DELINQUENCY (3+0) 3 credits S
Survey and evaluation of police programs designed to prevent juvenile delinquency. Techniques of enforcement relative to the control of delinquency; investigation procedures in individual cases of delinquency, and methods of referral to related agencies.

260 THE VOLUNTEER IN COURTS AND CORRECTIONS (4+0) 4 credits
Intensive course designed to prepare persons for volunteer service in courts and corrections with particular emphasis on juvenile and youthful offenders. (Same as S.Sv.C. 260.)

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 investigations. 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.

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. 130 and upper-division standing.

410 CRIMINAL JUSTICE SEMINAR (2+0) 2 credits
Prerequisite: junior standing.

420 CRIMINAL LAW SEMINAR (2+0) 2 credits
Prerequisite: C.J. 120, 220, 320, and senior standing.

421 SEMINAR IN RECENT COURT DECISIONS (2+0) 2 credits
Prerequisite: C.J. 120, 220, 320, 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. 224 and senior standing.

499 SPECIAL PROBLEMS IN CRIMINAL JUSTICE 1 to 3 credits
May be repeated to a maximum of 6 credits. Open only to criminal justice majors. Prerequisite: junior standing.

Economics (Ec.)

109 ECONOMIC GEOGRAPHY (3+0) 3 credits F
World distribtuion 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.)

201 PRINCIPLES OF ECONOMICS I (3+0) 3 credits F,S
Introduction to the study of the determination of levels of national income, employment and prices, and the basic causes of fluctuations of these levels. Prerequisite: sophomore standing.

202 PRINCIPLES OF ECONOMICS II (3+0) 3 credits F,S
Introduction to the theory of relative prices, the allocation of productive resources among alternative uses in the production of national output and its distribution. Prerequisite: sophomore standing.

261 PRINCIPLES OF STATISTICS I (3+0) 3 credits F,S
Probability and major probability distributions; sampling theory; descriptive statistics; measures of central tendency and dispersion; index figures; time series. Prerequisite: Math. 110 or equivalent.

262 PRINCIPLES OF STATISTICS II (3+0) 3 credits F,S
Statistical inference; estimation, hypothesis testing; simple linear regression and correlation; analysis of the variance. Prerequisite: Ec. 261.

301, 601 COMPARATIVE ECONOMIC SYSTEMS (3+0) 3 credits F
Analysis of the economic institutions of capitalism and other economic systems. Prerequisite: Ec. 201 and 202.

303, 603 MONEY AND BANKING(3+0) 3 credits F,S
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. 201 and 202. Not applicable to an advanced degree in economics.

321, 621 INTERMEDIATE PRICE THEORY (3+0) 3 credits F,S
Analysis of the price mechanism and the determination of resource allocation, output composition, and income distribution in a market economy. Prerequisite: Ec. 201 and 202. Not applicable to an advanced degree in economics.

322, 622 INTERMEDIATE INCOME THEORY (3+0) 3 credits F,S
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. 201 and 202. Not applicable to an advanced degree in economics.

365, 665 LABOR ECONOMICS (3+0) 3 credits F
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. 201 and 202.

403, 703 MONETARY INSTITUTIONS AND POLICY (3+0) 3 credits S
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, 710 SEMINAR IN SOCIAL ECONOMICS (3+0) 3 credits F,S
Advanced analyses of current economic problems. Possible topics: environmental economics, technological progress, poverty and distribution, economics of education, trends in various sectors of the economy.

431, 731 INTRODUCTION TO MATHEMATICAL ECONOMICS (3+0) 3 credits F
Mathematical formulation of economic theory, with principal consideration given to the construction of deterministic models of economic behavior. Prerequisite: Math. 160 and Ec. 321.

441, 741 INTRODUCTION TO ECONOMETRICS (3+0) 3 credits S
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. 201-202, 262, or equivalent.

451, 751 PUBLIC FINANCE (3+0) 3 credits F
Study and appraisal of the effects of government financial policies. Government expenditures, taxation, government borrowing and indebtedness, and fiscal policy are considered. Prerequisite: Ec. 201 and 202.

454, 754 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY (3+0) 3 credits F
Study of the interrelationships between industrial structure, conduct, and performance. Implications for public policy, with an emphasis on antitrust law. Prerequisite: Ec. 201 and 202.

456, 756 ECONOMICS OF REGULATED INDUSTRIES (3+0) 3 credits S
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. 201 and 202.

458, 758 INTERNATIONAL ECONOMICS (3+0) 3 credits F
Analysis of the theory of international trade, balance of payments, commercial policies; international institutions and the theory of international economic integration. Prerequisite: Ec. 201 and 202.

459, 759 ECONOMIC DEVELOPMENT (3+0) 3 credits S
Introduction to the problems, principles, and policies of economic development. Consideration given to case studies of selected countries. Prerequisite: Ec. 201 and 202.

463, 763 ECONOMIC HISTORY OF EUROPE (3+0) 3 credits F
Economic and social background of European national and international development with emphasis upon the period 1500 to present. Prerequisite: Ec. 201 and 202.

464, 764 ECONOMIC HISTORY OF THE UNITED STATES (3+0) 3 credits S
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. 201 and 202.

471, 771 URBAN ECONOMICS (3+0) 3 credits S
Exploration of the foundation of urban economic theory and planning. Primary emphasis placed upon research into urban problems and policy formulation.

472, 772 REGIONAL ECONOMICS (3+0) 3 credits F
A 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. 321, 322. (Same as A.R.Ec. 472.)

481, 781 HISTORY OF ECONOMIC DOCTRINES (3+0) 3 credits S
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. 201 and 202.

490, 790 INDEPENDENT STUDY 1 to 3 credits F,S SU
Independent study in selected topics. May be repeated to a maximum of 6 credits.

903 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.

908 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. 201 and 202.

915-916 STATISTICS FOR BUSINESS DECISIONS (3+0) 3 credits each F-S
Probability, estimation, hypothesis testing, subjective probability, regression analysis, correlation, time series, index numbers, statistical and decision theory as applied to business problems. Prerequisite: Ec. 915 for Ec. 916. (Satisfies requirement for MBA first-year core.)

921 ADVANCED PRICE THEORY (3+0) 3 credits
Advanced analysis of production, pricing, resource allocation, and income distribution. Prerequisite: Ec. 321.

922 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.

931 QUANTITATIVE METHODS IN ECONOMICS (3+0) 3 credits
Uses of mathematics and statistics in economic analysis. Prerequisite: Ec. 441.

940 RESEARCH METHODOLOGY (3+0) 3 credits S
(See A.R.Ec. 940 for description.) Students registered for Ec. 940 attend A.R.Ec. 940.

951 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.

959 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.

965 SELECTED TOPICS IN LABOR ECONOMICS (3+0) 3 credits
An 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.

981 SEMINAR IN ECONOMIC DOCTRINES (3+0) 3 credits
Development of the critical method in the study of economic doctrines. Prerequisite: Ec. 481.

990 INDEPENDENT RESEARCH 1 to 3 credits F,S SU
Advanced study and research in selected topics. May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits F,S

Inactive Courses

101 ECONOMIC DEVELOPMENT OF WESTERN CIVILIZATION (3+0) 3 credits F,S
473, 773 BUSINESS FLUCTUATIONS AND FORECASTING (3+0) 3 credits F
917 ECONOMIC ANALYSIS AND POLICY I (3+0) 3 credits F
918 ECONOMIC ANALYSIS AND POLICY II (3+0) 3 credits S
972 REGIONAL ECONOMICS (3+0) 3 credits

Education

Counseling and Guidance Personnel Services (C.A.P.S.)

330 EDUCATIONAL PSYCHOLOGY (3+0) 3 credits F,S SU
An overview of the psychology of learning, motivation, growth and development, personality dynamics, and social adjustment. Prerequisite: Psy. 101.

400, 700 INTRODUCTION TO COUNSELING AND GUIDANCE (3+0) 3 credits F,S SU
An 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, 701 INTRODUCTION TO ELEMENTARY SCHOOL GUIDANCE (3+0) 3 credits F,S SU
An overview of personnel services at the elementary school and preschool levels. The teacher's role emphasized. Graduate program credit for nonmajors and foreign students only. Prerequisite: Psy. 101.

410, 710 INTRODUCTION TO EMPLOYMENT COUNSELING (3+0) 3 credits S SU
Principles, procedures, techniques, backgrounds of public and private employment agencies. Emphasis on employment records, test (General Aptitude Test Battery), occupational information, referral, placement, employer relations. Prerequisite: Psy. 101 and C.A.P.S. 400.

414, 714 THE COLLEGE STUDENT (3+0) 3 credits F
Characteristics of college students' goals, values, attitudes, and relationships. Studnt personnel systems designed to facilitate personal, social, academic, and vocational growth. Prerequisite: C.A.P.S. 400.

417, 717 INTRODUCTION TO REHABILITATION COUNSELING (3+0) 3 credits F
Philosophy, procedures, staff and professional relationships employed in the rehabilitation process including evaluation, interviewing, planning, and placement. Prerequisite: C.A.P.S. 400.

420, 720 THE INFORMATION SERVICES (3+0) 3 credits F SU
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, 722 CAREER EDUCATION (3+0) 3 credits F,S SU
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: Foundations of Teaching V.

431, 731 BEHAVIORAL ANALYSIS (3+0) 3 credits F SU
Interaction analysis of groups and diagnosis of individual behavior. Prerequisite: C.A.P.S. 330.

438, 738 LEARNING IN EDUCATION (3+0) 3 credits S SU
Problem solving, cognitive processes, concept formation, and creativity in learning applied to the educational and classroom setting. Conditions and processes of behavior modification. Prerequisite: Foundations of Teaching V.

442, 742 INDIVIDUAL APPRAISAL I (3+0) 3 credits F SU
Selection, administration, interpretation, and statistical understanding of standardized aptitude, achievement, and personal-social adjustment tests. Prerequisite: C.A.P.S. 400 or 401.

460, 760 THE GROUP PROCESS (3+0) 2 or 3 credits F SU
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.

490, 790 WORKSHOP IN COUNSELING AND GUIDANCE (1+0 per credit) 1 to 4 credits F,S SU
Specialized instruction in counseling and guidance designed to develop depth in understanding of a current guidance problem. May be repeated to a maximum of 4 credits.

499, 799 SPECIAL PROBLEMS IN COUNSELING 1 to 6 credits F,S SU
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.

915 FINANCIAL AIDS AND PROFESSIONAL PLACEMENT (3+0) 3 credits F SU
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.

921 THEORIES OF OCCUPATIONAL CHOICE (3+0) 3 credits S SU
Analysis of the relationships among theoretical constructs, counselor behavior, and vocational counseling services. Prerequisite: C.A.P.S. 400 or 401.

942 INDIVIDUAL APPRAISAL II (3+0) 2 or 3 credits S SU
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. 742.

944 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. 942 and 970.

949 CASE STUDY SEMINAR (2+1) 2 credits F,S SU
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. 950 plus 18 graduate credits in C.A.P.S. courses.

950 THE COUNSELING PROCESS (3+0) 3 credits F SU
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. 742.

951 COUNSELING THE CULTURALLY DIFFERENT
(3+0) 3 credits S SU
Special relational problems and processes in 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. 950.

952 ADVANCED COUNSELING THEORY (3+0) 3 credits S SU
Depth investigation of major theoretical positions related to professional counseling services. Ethical and procedural components stressed. Prerequisite: C.A.P.S. 970.

955 SEMINAR IN ELEMENTARY SCHOOL COUNSELING
(3+0) 3 credits F,S SU
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. 742, 760, 950.

964 GROUP COUNSELING THEORY (1+0 per credit)
2 or 3 credits S SU
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. 760 plus 15 graduate credits in C.A.P.S. courses.

970 PRACTICUM IN COUNSELING (1½+6)
3 credits F,S SU
Supervised counseling internship. May be repeated to a maximum of 6 credits. Written applications required one month prior to registration. Prerequisite: C.A.P.S. 742, 760, 950.

972 PRACTICUM IN MULTIPLE COUNSELING
(1½+6) 3 credits F,S
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. 970.

979 PRACTICUM IN SCHOOL PSYCHOMETRY
(1½+6) 3 credits F,S
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: 6 credits selected from Psy. 911, 912, and C.A.P.S. 942.

984 STRUCTURE AND SUPERVISION OF PUPIL PERSONNEL PROGRAMS (2+0) 2 credits F,S SU
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. 950.

990 INDIVIDUAL INSTRUCTION IN COUNSELING AND GUIDANCE PERSONNEL SERVICES
1 credit F,S SU
Selected basic problems related to counseling and guidance personnel services. May be repeated to a maximum of 4 credits.

992 SEMINAR IN COUNSELING AND GUIDANCE PERSONNEL SERVICES 2 to 4 credits F,S SU
Prerequisite: graduate standing. May be repeated to a maximum of 4 credits.

997 THESIS 1 to 6 credits F,S SU

Educational Foundations (Ed.)

103 BASIC FOUNDATIONS OF EDUCATION
(2+0) 2 credits F,S SU
Prerequisite for upper-division courses in the College of Education. Introduction to the basic philosophical, sociological, and psychological foundations of professional education.

210 LEGAL FOUNDATIONS OF EDUCATION
(2+0) 2 credits F,S SU
Historical development of paramount issues in contemporary education. Emphasizes legal aspects of emerging educational patterns. Meets state certification requirements in Nevada school law. Prerequisite: sophomore standing.

301 INTRODUCTION TO LIBRARY EDUCATION
(3+0) 3 credits F SU
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, 702 WORKSHOP IN SCHOOL LIBRARY PROBLEMS
(2+0) 2 credits SU
Problems pertaining to administration and operation of a school library. Discussed from point of view of the teacher-librarian. Prerequisite: Ed. 301, 403, 404, 406, or equivalent.

403, 703 LITERATURE SELECTION FOR CHILDREN
(1+0 per credit) 2 or 3 credits F,S SU
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, 704 BOOK SELECTION FOR ADOLESCENTS
(3+0) 3 credits S SU
Prepares teacher-librarians and administrators for evaluation of books and other library materials for pupils in the secondary schools. Prerequisite: Ed. 301 or equivalent.

406, 706 ORGANIZATION OF LIBRARY MATERIALS
(3+0) 3 credits S SU
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. 301 or equivalent.

407, 707 SUPERVISED LIBRARY PRACTICE
(0+2 per credit) 1 to 4 credits S
Opportunities for supervised library practice under the direction of a professionally trained librarian in a school situation. Prerequisite: Ed. 301, 403, 404, 406 and 408 or equivalent.

408, 708 ADMINISTRATION OF THE SCHOOL LIBRARY
(3+0) 3 credits SU
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. 301, 403, 404, 406 or equivalent.

413, 713 EDUCATIONAL MEASUREMENTS AND STATISTICS (1+0 per credit) 2 or 3 credits F,S SU
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, 720 AUDIOVISUAL METHODS IN TEACHING (1+0 per credit) 2 or 3 credits F,S SU
For both elementary and secondary students; a study of the principles and application of both projected and nonprojected materials in audiovisual education. Prerequisite: Foundations I, II, III or equivalent.

421, 721 EDUCATION IN DEVELOPING NATIONS (1+0 per credit) 2 or 3 credits F SU
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, 722 SEMINAR IN EDUCATION IN DEVELOPING NATIONS (1+0 per credit) 2 or 3 credits S SU
Intensive study of student-selected topics dealing with current policies for educational development in Latin America, Africa, and Asia.

425, 725 EDUCATIONAL MOTION PICTURE PRODUCTION (2+1) 3 credits F,S SU
Idea development, research, planning and production of instructional motion pictures. Script writing, filming, editing and sound systems and applications, supervision of budget, personnel, and content during film preparation. Prerequisite: Ed. 420 or its equivalent.

426, 726 PRACTICUM IN EDUCATIONAL MEDIA (0+2 per credit) 1 to 3 credits F,S SU
Supervised experience in designing, developing and evaluating instructional media for specific teaching objectives. Involves working in the Learning and Resource Center. Prerequisite: Ed. 402 or equivalent.

452 ADVANCED SUPERVISED TEACHING (0+2½ per credit) 1 to 4 credits F,S SU
For the student who desires further teaching experience under supervision. Prerequisite: E.S.Ed. 451 or S.Ed. 457.

460, 760 TEACHING FOR CRITICAL THINKING (3+0) 3 credits F,S SU
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, 775 ANTHROPOLOGY AND EDUCATION (3+0) 3 credits F,S SU
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 multiethnic situations. Prerequisite: Anth.100 or 101. (Same as Anth. 475.)

499, 799 SPECIAL PROBLEMS IN EDUCATION 1 to 6 credits F,S SU
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. 499, 799; E.S.Ed. 481, 781; and S.Ed. 499, 799 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.

900 INTRODUCTION TO EDUCATIONAL RESEARCH (2+0) 2 credits F,S SU
Introductory course 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.

901 HISTORY AND PHILOSOPHY OF EDUCATION (1+0 per credit) 2 or 3 credits F,S SU
Development of educational thought and practice viewed as a phase of social progress. Emphasis upon Western civilization.

902 HISTORY OF EDUCATION IN THE UNITED STATES (1+0 per credit) 2 or 3 credits S SU
Study of factors and conditions which have been influential in the shaping of educational thought, ideals, theories, and practices of current American education.

903 SOCIAL FOUNDATIONS OF EDUCATION (2+0) 2 credits F,S SU
Required of all students in the graduate degree programs of the College of Education. Analysis of American society and its relationship to the educational system.

905 ADVANCED STUDY OF HUMAN GROWTH AND DEVELOPMENT (2+0) 2 credits F,S SU
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: E.S.Ed. 270 or equivalent.

906 EDUCATIONAL USES OF TELEVISION (1+1 per credit) 2 or 3 credits F SU
Analysis of trends in utilization of television and video tape recordings. Includes program production, evaluation, and methods of teaching with these media.

907 MODERN TECHNOLOGY IN EDUCATION (2+0) 2 credits F,S SU
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.

908 PROBLEMS IN AUDIOVISUAL EDUCATION (1+2) 2 credits F,S SU
Meets the needs of individual students primarily in production and utilization of audiovisual materials. Problems pertinent to production of educational materials.

911 COMPARATIVE EDUCATION (2+0) 2 credits F,S SU
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.

912 FIELD EXPERIENCES IN EDUCATIONAL RESEARCH (1½+6) 1 to 4 credits F,S
Directed experience in research in various areas in the public schools and other educational agencies. Prerequisite: Ed. 900 or equivalent.

913 ADVANCED EDUCATIONAL MEASUREMENTS AND STATISTICS (2+0) 2 or 3 credits S SU
Second course designed for the student planning to contribute research findings of his own design. Refinement of inferential statistical methods introduced in Ed. 413. Prerequisite: Ed. 413.

914 INDIVIDUAL RESEARCH 1 to 4 credits F,S SU
Pursuance of selected basic problems from one of the areas listed under general professional education.

952 SEMINAR IN COLLEGE TEACHING (1+0 per credit) 2 to 5 credits F,S
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.

955 SUPERVISED TEACHING IN EDUCATION (1+1 per credit) 2 or 3 credits F,S
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.

997 THESIS 1 to 6 credits F,S SU

Elementary and Special Education (E.S.Ed.)

Students with an interest in special education should consult with their adviser for information on graduate and undergraduate programs.

172 INTRODUCTION TO SPECIAL EDUCATION (2 or 3+0) 2 or 3 credits F,S SU
Exploration of services and professional opportunities in the education of exceptional children. Emphasis upon field trips (and observation of exceptional children of various types) to public school and institutional settings.

220 INTRODUCTION TO ELEMENTARY EDUCATION (1+3) 2 credits F,S
Emphasizes self-assessment of professional goals through a variety of sequential laboratory experiences in actual classroom situations and on campus seminars. Prerequisite or corequisite: Ed. 103, 210. *S/U only.*

270 HUMAN GROWTH AND DEVELOPMENT (2+1 per credit) 2 or 3 credits F,S SU
Emphasizes principles of human growth and development, the nature of the child, and how children learn. Laboratory with children required. Prerequisite: general psychology.

310 EDUCATION OF THE EXCEPTIONAL CHILD (1+0 per credit) 2 or 3 credits F SU
Problems of teaching mentally retarded, physically handicapped, gifted, and socially maladjusted children in special and regular school programs.

322 TEACHING OF ELEMENTARY MATHEMATICS (1+0 per credit) 2 or 3 credits F,S SU
Considers content and methods of elementary mathematics; diagnosis and remedial treatment of pupil difficulties; readiness; objectives of mathematics; recent trends.

323 TEACHING OF ELEMENTARY LANGUAGE ARTS AND CHILDREN'S LITERATURE (3+0) 3 credits F,S SU
Considers language needs of children with emphasis on written expression, handwriting, spelling, speaking, and listening skills. Criteria for the selection of children's literature are applied. Techniques of oral interpretation and story telling are practiced.

324 TEACHING OF READING IN THE ELEMENTARY SCHOOL (1+0 per credit) 2 or 3 credits F,S SU
Instruction in phonics, word recognition, and comprehension. Basic understandings, techniques, and approaches which are related to developmental and corrective programs in the elementary schools.

325 TEACHING OF ELEMENTARY SCIENCE (1+0 per credit) 2 or 3 credits F,S SU
Emphasizes the content and procedures in teaching science; demonstrations; experiments; evaluation of curricula materials.

329 TEACHING OF ELEMENTARY SOCIAL STUDIES (1+0 per credit) 2 or 3 credits F,S SU
Considers the content, procedures, and the nature of social growth of children in a democratic culture. Emphasis given to the development of instructional materials.

369 UNDERSTANDING CHILD BEHAVIOR (1+0 per credit) 2 or 3 credits F,S SU
Understanding and assessment of individual and group behavior. Increasing quality of group living in the classroom; parent-teacher relationships as they affect behavior of children.

370 OBSERVATION IN THE ELEMENTARY SCHOOL (1+5) 2 credits F,S SU
Provides the student with an opportunity to observe children and the effect of teaching on the learning process.

401, 701 INDIVIDUALIZED READING (1+0 per credit) 2 or 3 credits S SU
Intensive study of theory, procedures, organization, and content of an individualized approach to the organization, and content of an individualized approach to the teaching of reading.

402, 702 READING IN THE LOWER ELEMENTARY GRADES (3+0) 3 credits F,S SU
Advanced work in development and corrective reading including new developments, techniques, and methods which are related to the primary grades. Prerequisite: E.S.Ed. 324.

403, 703 READING IN THE UPPER ELEMENTARY GRADES (3+0) 3 credits F,S SU
Advanced work in developmental and corrective reading for the special reading teacher and the subject-matter teachers, including new developments, techniques, and methods which are related to the upper elementary grades. Prerequisite: E.S.Ed. 324.

404, 704 SURVEY OF REMEDIAL READING PROBLEMS (3+0) 3 credits F,S SU
Introductory course for remedial reading training. Offers specialized instruction in reading designed to develop depth in remedial reading problems. Prerequisite: E.S.Ed. 324.

405, 705 DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES IN THE ELEMENTARY SCHOOL (3+0) 3 credits F,S
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 elementary school mathematics. Prerequisite: (a) E.S.Ed. 324; (b) E.S.Ed. 442.

406, 706 PRACTICUM IN THE READING CLINIC (1+5) 3 credits F,S SU
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: E.S.Ed. 324.

411 INTRODUCTION TO STUDY OF MENTAL RETARDATION (3+0) 3 credits F
Introduction to theories of intelligence, learning, psychological, and physical aspects of mental retardation.

412, 712 EDUCATION OF THE MENTALLY RETARDED (1+0 per credit) 2 or 3 credits F SU
Nature of retardation, diagnosis, and selection for special programs. Physiological characteristics. Educational goals and teaching procedures.

419, 719 TEACHING THE BLIND AND VISUALLY HANDICAPPED (1+1 per credit) 2 or 3 credits SU
Anatomy and physiology of the eye. Instruction of the partially seeing and blind. Instruction in Braille, six-key typewriter, and other audiovisual equipment. Prerequisite: E.S.Ed. 172 and 310 or equivalent.

426, 726 TEACHING SKILL DEVELOPMENT TECHNIQUES (1+3) 2 credits F,S SU
Skill development in five areas of classroom teaching: teacher initiation and response, "because" extensions and effective criticism, accepting and using student ideas and feelings, self-directed inquiry into the effects of teaching style on student verbal transactions. Prerequisite: Foundations III.

430, 730 KINDERGARTEN EDUCATION (1+0 per credit) 2 or 3 credits F SU
Acquaints the student with the practical problem of organizing the kindergarten programs. Emphasis on organization, methods, materials, and developmental aspects of learning. Prerequisite: Foundations for Elementary Teaching I, II

433, 733 CREATIVE EXPERIENCES IN EARLY CHILDHOOD EDUCATION (3+0) 3 credits F,S SU
Analyzes and examines the nature of creative expression including art, music, movement, drama, and creative thinking. Prerequisite: Foundations for Elementary Teaching IV.

440, 740 THE INTEGRATED CURRICULUM (1+0 per credit) 2 or 3 credits F,S SU
Emphasizes the integration of subject matter into a functional learning situation. Considerable attention is given to curricular areas and methods of instruction. Not open to students who have completed the combined student teaching curriculum plan.

441, 741 CURRICULUM DEVELOPMENT IN ECONOMICS EDUCATION (1+0 per credit) 2 or 3 credits F,S SU
Recent curriculum developments in economics education, review of pertinent literature, and development of techniques for imparting basic concepts of economics to the elementary school child. Prerequisite: Foundations for Elementary Teaching III.

442, 742 CURRICULUM DEVELOPMENT IN MATHEMATICS (1+0 per credit) 2 or 3 credits S SU
Emphasizes research and curriculum studies dealing with content and procedures of mathematics. Prerequisite: E.S.Ed. 322.

443, 743 CURRICULUM DEVELOPMENT IN THE LANGUAGE ARTS (1+0 per credit) 2 or 3 credits F SU
Emphasizes research and curriculum studies dealing with content and procedures of the language arts. Prerequisite: E.S.Ed. 323.

444, 744 CURRICULUM DEVELOPMENT IN ENVIRONMENTAL EDUCATION (2+3 per credit) 2 or 3 credits F,S SU
Emphasizes development of the elementary school curriculum in the area of environmental education. Special emphasis is given to school and school-camp program. Activities for promoting the acquisition of environmental concepts are demonstrated. Prerequisite: 6 credits of science.

445, 745 CURRICULUM DEVELOPMENT IN ELEMENTARY SCIENCE (1+0 per credit) 2 or 3 credits F SU
Emphasizes research and curriculum studies dealing with content and procedures of elementary science program. Prerequisite: E.S.Ed. 325.

446, 746 CURRICULUM DEVELOPMENT FOR TRAINABLE MENTALLY RETARDED CHILDREN (3+0) 3 credits F
Curriculum developments and methods in teaching the severely retarded child.

447, 747 CURRICULUM DEVELOPMENT FOR THE EDUCABLE MENTALLY RETARDED CHILD (3+0) 3 credits F
Considers 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: E.S.Ed. 412, 712.

449, 749 CURRICULUM DEVELOPMENT IN THE SOCIAL STUDIES (1+0 per credit) 2 or 3 credits F SU
Emphasizes research and curriculum studies dealing with content and procedures of the social studies.

451 SUPERVISED TEACHING IN THE ELEMENTARY GRADES (0+2½ per credit) 4 to 8 credits F,S SU
Involves 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).

453 STUDENT TEACHING WITH EXCEPTIONAL CHILDREN (0+2½ per credit) 6 to 8 credits F,S
Practical experience in the classroom management and teaching of exceptional children: (a) mental retardation, (b) speech therapy. Prerequisite: E.S.Ed. 172, 310, 411.

454, 754 PROBLEMS IN SPECIAL EDUCATION (3+0) 3 credits S
Emphasizes the integration of subject matter into the learning situation. Considerable attention to new procedures and developments in the area of special education. Observation of special classrooms is required. Prerequisite: E.S.Ed. 172, 310, 411. Corequisite: E.S.Ed. 453.

470, 770 ADVANCED STUDY OF PROBLEMS IN CHILD DEVELOPMENT (1+0 per credit) 2 or 3 credits F,S SU
Deals with interpretation and implications of research on child growth and development especially as related to classroom teaching. Required of all graduate majors.

473, 773 ADVISING EXCEPTIONAL CHILDREN (3+0) 3 credits S
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 and is open to special education majors only.

480, 780 INDIVIDUAL INSTRUCTION IN ELEMENTARY EDUCATION (0+1 arranged per credit) 1 to 4 credits F,S SU
Selected basic problem or problems related to the field of elementary education.

481, 781 SPECIAL PROBLEMS IN EDUCATION 1 to 6 credits F,S SU
Specialized instruction in elementary education designed to develop depth in understanding of a current educational problem of the in-service teacher. A maximum of 6 credits is accepted in Ed. 499, 799; E.S.Ed. 481, 781 and S.Ed. 499, 799 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.

482, 782 FIELD STUDIES IN ELEMENTARY EDUCATION (1+0 per credit) 2 or 3 credits F,S
Provides intensive study on organization and interpretation of data relative to selected problems such as curriculum development, parent-teacher relations, groupings of pupils.

901 FIELD WORK AND CLINICAL PRACTICE IN READING (1+5) 3 credits F,S SU
Concentrates on practice in reading with emphasis upon clinical diagnosis, prognosis, and remediation. Prerequisite: E.S.Ed. 324 or equivalent.

902 READING CLINIC (1+5) 3 credits F,S SU
Concentrates on the administration of the reading clinic. Involves observation, planning, and management of the pupil's diagnosis and remediation as well as staffing and parent conference. Prerequisite: E.S.Ed. 901.

913 ORGANIZATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN (3+0) 3 credits S
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: E.S.Ed. 412, 453, 473.

914 EDUCATION OF THE PHYSICALLY HANDICAPPED (1+0 per credit) 2 or 3 credits SU
Deals with problems of physically handicapped children and youth, deaf, hard-of-hearing, blind, partially-sighted, crippled, and cerebral palsied.

915 EDUCATION OF THE GIFTED (1+0 per credit) 2 or 3 credits SU
Consideration of educational programs and procedures to develop stimulating environments for the maximum development of gifted or superior children. Specific cases and demonstration.

916 TEACHING THE NEUROLOGICALLY HANDICAPPED (1+0 per credit) 2 or 3 credits F,S SU
Principles, methods, and materials appropriate for the instruction of the neurologically handicapped.

917 EDUCATION OF THE EMOTIONALLY HANDICAPPED (3+1) 3 credits F SU
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: E.S.Ed. 310, 770.

940 PRINCIPLES OF THE ELEMENTARY SCHOOL CURRICULUM (1+0 per credit) 2 or 3 credits F,S SU
Emphasizes the principles as found in the historical, philosophical, sociological, and psychological foundations. The needs of the child and society are considered. Prerequisite: E.S.Ed. 270, 323, 324, 325, 329, 370, 371 or equivalent. Required of graduate majors and minors in elementary education.

941 ADVANCED CURRICULUM DESIGN IN EARLY CHILDHOOD EDUCATION (3+0) 3 credits S SU
Emphasizes research and curriculum studies in content and procedures. Curriculum design projects undertaken. Prerequisite: E.S.Ed. 330, 333 and Ed. 905.

942 BASIC FOUNDATIONS IN ELEMENTARY EDUCATION (3+0) 3 credits F SU
Philosophical, historical, sociological, and psychological foundations of elementary education. Includes integrated curriculum, unit teaching, inquiry and discovery, human relations in the classroom. Prerequisite: E.S.Ed. 940 or equivalent.

948 ADVANCED CURRICULUM DESIGN FOR EXCEPTIONAL CHILDREN (3+0) 3 credits S
Recent developments in curriculum design for exceptional children including consideration of programmed instruction and operant procedures. Prerequisite: E.S.Ed. 446, 447.

960 SEMINAR IN EARLY CHILDHOOD EDUCATION (3+0) 3 credits F SU
Observation, study and research in early childhood education. Deals with problems of organization, administration, and evaluation of programs. Prerequisite: E.S.Ed. 330 and Ed. 905.

961 SEMINAR IN ELEMENTARY EDUCATION 1 to 6 credits SU
Deals with problems of organization, administration, curriculum, methodology, evaluation, public relations. Review of research procedures. (a) Curriculum, (b) Advanced methods, (c) Counseling and guidance, (d) Diagnosis and remedial, (e) Evaluation, (f) Administration and supervision, (g) Research. Prerequisite: E.S.Ed. 270, 322, 323, 324, 325, 329, 370, 371. Required of all graduate majors and minors in elementary education. May be repeated to a maximum of 6 credits.

962 SEMINAR IN SPECIAL EDUCATION 1 to 4 credits F,S SU
Consideration of special problems in organization, administration, curriculum, construction of materials, methodology, and evaluation. (a) Mentally retarded, (b) Physically handicapped, (c) Gifted or rapid learner, (d) Emotionally handicapped, (e) Culturally deprived, (f) General.

963 INTERSHIP IN ELEMENTARY EDUCATION (0+2 per credit) 3 to 6 credits F,S SU
A practical application of course content included in E.S.Ed. 942 in the classroom under the supervision and direction of local school system personnel and University staff members. Prerequisite: E.S.Ed. 942.

964 RESEARCH METHODS IN ELEMENTARY EDUCATION (3+0) 3 credits S SU
Analysis and application of methods of research appropriate to elementary education; planning, sampling, data collection, instrument construction, coding and date analysis, presentation of professional papers, research articles, manuscripts, and thesis. Prerequisite: minimum of 30 graduate credits in education.

975 PSYCHOEDUCATIONAL PROBLEMS OF EXCEPTIONAL CHILDREN (3+0) 3 credits F
Study of research dealing with physical, mental, emotional, and social characteristics of exceptional children. Emphasis on the implications of research for program development. Prerequisite: E.S.Ed. 473.

983 SUPERVISION AND FIELD WORK WITH EXCEPTIONAL CHILDREN (3+0) 3 credits S
Practicum in supervision, curriculum design and administration of programs for exceptional children. Prerequisite: E.S.Ed. 453, 473, 948.

997 THESIS 1 to 6 credits F,S SU

School Administration and Supervision (Sch.A.)

411, 711 THE TEACHER AND SCHOOL ADMINISTRATION (3+0) 3 credits F,S SU
An 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: Foundations of Education IV.

900 BASIC PRINCIPLES OF EDUCATIONAL ADMINISTRATION (3+0) 3 credits F,S SU
Foundational course for graduate students interested in school administration. Treatment of the major areas of school operations.

901 ADMINISTRATION OF SCHOOL STAFF PERSONNEL (3+0) 3 credits F,S SU
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: Sch.A. 900 or equivalent.

902 THEORY AND PRACTICE IN SCHOOL ADMINISTRATION (3+0) 3 credits F,S SU
Advanced course with emphasis on the theory undergirding the principles and practices in school administration. Bases for decision-making is treated. Prerequisite: Sch.A. 900 or equivalent.

903 ADMINISTRATION AND CURRICULUM IMPROVEMENT (3+0) 3 credits F,S SU
Clarifies the role of the administrator in improving curriculum and instruction in public schools.

904 ORGANIZATION AND ADMINISTRATION OF THE JUNIOR AND COMMUNITY COLLEGE (2+0) 2 credits F,S SU
Presents the principles, policies, and procedures for organizing and administering the junior and community college.

905 SEMINAR IN ADMINISTRATIVE PROBLEMS (0+1 arranged per credit) 1 to 4 credits F,S SU
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. May be repeated to a maximum of 4 credits. Prerequisite: Sch.A. 900, 901 or 915.

906 ADMINISTRATION OF SPECIAL PROGRAMS (3+0) 3 credits F,S SU
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.

907 SEMINAR IN ORGANIZATION AND ADMINISTRATION OF COMMUNITY COLLEGES (0+1 arranged per credit) 1 to 4 credits F,S SU
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.

910 THE UNIT ADMINISTRATOR AND ADMINISTRATION (3+0) 3 credits F,S SU
Gives specific treatment to the administration of the school unit on the elementary, middle school, junior high, and senior high levels. Prerequisite: Sch.A. 900 or equivalent.

915 SUPERVISION IN THE PUBLIC SCHOOLS (3+0) 3 credits F,S SU
Principles and procedures used by supervisors to improve the curriculum and instructional program in the public schools stressed.

916 SUPERVISION OF THE SCHOOL UNIT (3+0) 3 credits F,S SU
Emphasizes modern approaches in supervisory practices common to the various school units. Prerequisite: Sch.A. 915 or equivalent.

918 SUPERVISION OF STUDENT TEACHING (2+0) 2 credits F,S SU
Designed primarily for public school teachers who are functioning as cooperating teachers in the student teaching program.

925 PUBLIC SCHOOL FINANCE (3+0) 3 credits F,S SU
Deals with such problems of business management as purchasing of supplies, budgeting, and bonding for school purposes.

926 PROBLEMS OF FINANCING PUBLIC EDUCATION (3+0) 3 credits F,S SU
Philosophical as well as practical treatment given to state and federal involvement in public education, including budgetary and program procedures.

927 SEMINAR IN SCHOOL FINANCE (0+1 arranged per credit) 1 to 4 credits F,S SU
Specific problems related to financing public education on the local, state, and national levels. Prerequisite: Sch.A. 925 or 926.

930 SCHOOL SURVEYS AND EDUCATIONAL FACILITIES (1+0 per credit) 2 or 3 credits F,S SU
Master planning, involving the details of programming, site selecting, constructing, maintaining, and equipping the school plant.

931 THE EDUCATIONAL PLANT (3+0) 3 credits F,S SU
Specialized treatment given to the theoretical and practical procedures in developing written specifications for the school plant. Laboratory work. Prerequisite: Sch.A. 930.

935 PRINCIPLES AND PRACTICES IN SCHOOL LAW (2+0) 2 credits F,S SU
Deals with legal authority of school boards, administrators, and teachers as indicated by statutes, official opinions, and court decision.

940 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES (1+0 per credit) 2 or 3 credits F,S SU
Problems of organizing and administering guidance services in the public schools.

941 ADMINISTRATION OF PUPIL PERSONNEL PROGRAMS (2+0) 2 credits F,S SU
Presents factors pertaining to the responsibility for policies and practices dealing with pupil personnel services.

942 ORGANIZATION AND ADMINISTRATION OF VOCATIONAL EDUCATION (2+0) 2 credits F,S SU
Organization and administration of the special field of vocational education in secondary schools as well as adult vocational programs.

943 PUBLIC RELATIONS FOR SCHOOLS (2+0) 2 credits F,S SU
Principles and practices pertaining to public relations, including the role of professional and classified personnel as well as the public.

944 PROBLEM AREAS IN SCHOOL ADMINISTRATION (1+0 per credit) 2 or 3 credits F,S SU
Group work to select current problems pertaining to public school administration and to develop proposed solutions to such problems.

950 INDIVIDUAL INSTRUCTION IN SCHOOL ADMINISTRATION (0+1 per credit) 1 to 4 credits F,S SU
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, (j) School plant. May be repeated to a maximum of 4 credits.

951 INDIVIDUAL INSTRUCTION IN ADULT AND TEACHER EDUCATION (0+1 per credit) 1 to 4 credits F,S SU
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, (j) School plant. May be repeated to a maximum of 4 credits.

952 FIELD EXPERIENCES IN SCHOOL ADMINISTRATION (1+0 per credit) 1 to 4 credits F,S SU
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, (j) School plant. May be repeated to a maximum of 4 credits.

953 READINGS IN SCHOOL ADMINISTRATION (0+1 per credit) 1 to 4 credits F,S SU
Supervised readings with conferences between student and instructor. May be repeated to a maximum of 4 credits.

960 INTERNSHIP IN EDUCATIONAL ADMINISTRATION (0+2 per credit) 3 to 9 credits F,S SU
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.

997 THESIS 1 to 6 credits F,S SU

Secondary Education (S.Ed.)

244 INTRODUCTION TO AGRICULTURAL EDUCATION (1+0) 1 credit S
The operation, history and philosophy of the vocational agriculture program. (Offered in even numbered years.)

346 ART EDUCATION: SECONDARY SCHOOLS (0+6) 3 credits S
(See Art 346 for description.)

347 TEACHING HOME ECONOMICS (3+0) 3 credits F
General review of the homemaking curriculum as it relates to learning experience, methods and materials.

349 TEACHING OF SECONDARY MUSIC (2+0) 2 credits S
(See Mus. 349 for description.)

352 TEACHING BUSINESS EDUCATION SUBJECTS (2+0) 2 credits F SU
Methods of teaching bookkeeping, typewriting, stenography, and office practice.

372 METHODS OF TEACHING PHYSICAL EDUCATION (2+2) 3 credits F,S
(See P.Ed. 372 for description.)

374 HEALTH INSTRUCTION METHODS FOR SECONDARY TEACHERS (2+0) 2 credits S
Methods and materials used in presenting acceptable health practices to secondary school students. Includes unit planning. Prerequisite: Zool. 224.

401 GENERAL PRINCIPLES, MATERIALS AND METHODS OF SECONDARY EDUCATION (1+2) 2 credits F,S SU
Basic orientation and preparation for supervised teaching. Laboratory experiences required. Required for admission to supervised teaching. Prerequisite: Foundations for Secondary Teaching I, II or equivalent. Methods courses should generally be taken concurrently with supervised teaching.

402 TEACHING SOCIAL STUDIES (1+0 per credit) 2 or 3 credits F,S SU

403 TEACHING ENGLISH (1+0 per credit) 2 or 3 credits F,S SU

404 TEACHING SCIENCE (1+0 per credit) 2 or 3 credits F,S SU

405 TEACHING MATHEMATICS (1+0 per credit) 2 or 3 credits S SU

406 METHODS AND MATERIALS IN TEACHING FOREIGN LANGUAGES (3+0) 3 credits F,S

407 TEACHING INDUSTRIAL EDUCATION (3+0) 3 credits F,S
Techniques of teaching applied to individual and group instruction in industrial education. Shop organization and planning including working drawings of industrial education shops and classrooms, location and standards of equipment, checking plans and specifications, safety precautions, shop rules and regulations.

431, 731 ADVANCED METHODOLOGY IN THE SECONDARY SCHOOL (3+0) 3 credits F SU
Study and evaluation of innovative teaching in the secondary school. Prerequisite: S.Ed. 457 or equivalent.

432, 732 FUNDAMENTALS OF SECONDARY SCHOOL CURRICULUM (3+0) 3 credits F SU
Current curriculum practices in the secondary school; relationships among the subjects in the secondary school curriculum. Prerequisite: S.Ed. 457 or equivalent.

435, 735 METHODS OF TEACHING ENVIRONMENTAL SCIENCE (3+0) 3 credits F SU
Emphasizes methods of teaching environmental science. Special emphasis on outdoor ducation methods. Materials and media for effective teaching are included in the course. Prerequisite: 9 credits of science and a secondary methods course.

442, 742 THE JUNIOR HIGH SCHOOL/MIDDLE SCHOOL (3+0) 3 credits S SU
Development, basic philosophy, and functions. Psychological and educational foundations. Special problems and practices in administration, curriculum, instruction, guidance, and student activities.

444 METHODS AND MATERIALS OF TEACHING FARM MECHANICS (2+0) 2 credits F
Organization and administration of a farm mechanics program, including objectives, course content, lesson planning, and teaching methods.

446, 746 PROGRAM DEVELOPMENT IN AGRICULTURAL AND INDUSTRIAL EDUCATION (2+0) 2 credits F
(See I.M. 446 for description.)

447 METHODS IN TEACHING VOCATIONAL AGRICULTURE (3+0) 3 credits F
(See I.M. 447 for description.)

449 ORGANIZATION AND ADMINISTRATION OF HOME ECONOMICS (2+0) 2 credits F
(See H.Ec. 449 for description.)

451, 751 ADULT EDUCATION (1+0 per credit) 1 to 6 credits F SU
(See H.Ec. 451 for description.)

455, 755 WORKSHOP IN VOCATIONAL EDUCATION (1+0) 1 to 6 credits F,S SU
Modern developments in vocational and technical education programs: local vocational education administration and supervision, agriculture, home economics, trades and industries, business and office occupations, health occupations, technical occupations, marketing and distributive occupations, and vocational guidance. May be repeated to a maximum of 6 credits.

456, 756 NONINSTRUCTIONAL RESPONSIBILITIES (2+0) 2 credits SU
Gives the secondary school teacher an overall view of the responsibility for noninstructional activities in secondary schools. Attention given to the administration of these activities.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0+2½ per credit) 1 to 8 credits F,S
(Major and/or minor teaching field.) Provides opportunities in the senior year for teaching in a specific class situation in either junior or senior high school. Prerequisite: Ed. 103, 210, C.A.P.S. 330 completed; C.A.P.S. 400, S.Ed. 401, Special Methods completed or in progress; and successful screening, including grade-point averages (major-2.3; minor-2.0; overall-2.0), speech and hearing clearance, language proficiency test, and medical examination. Application for supervised teaching should be made to Department of Secondary Education by March 1 of the junior year. (See catalog statement on Supervised Teaching.)

458, 758 DRIVER TRAINING AND TRAFFIC SAFETY EDUCATION (3+0) 3 credits F,S SU
Development of the knowledge, attitudes, and skills needed for competent teaching of driver training and traffic safety. Prerequisite: Foundations of Education IV.

460, 760 READING IN THE SECONDARY SCHOOL (2+2) 3 credits F,S SU
Sources of reading difficulties; reading skills; developmental reading; reading in content fields. Laboratory experiences required. Prerequisite: C.A.P.S. 330 or valid teaching certificate.

471, 771 DEVELOPMENT OF INDUSTRIAL EDUCATION (3+0) 3 credits F,S SU
History and development of industrial education programs and their place in the total program of modern education. A chronological overview of what happened—how and why it was developed.

499, 799 SPECIAL PROBLEMS IN EDUCATION 1 to 6 credits F,S SU
Specialized instruction in secondary education designed to develop depth in understanding of a current educational problem of the in-service teacher. A maximum of 6 semester credits accepted in special problems in Ed. 499, 799, E.S.Ed. 481, 781 and S.Ed. 499, 799 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.

933 EVALUATION OF CLASSROOM INSTRUCTION IN THE SECONDARY SCHOOL (3+0) 3 credits S SU
Construction and use of classroom tests and other instruments for evaluating instructionin the secondary school. Prerequisite: S.Ed. 457 or equivalent.

946 SECONDARY EDUCATION CURRICULUM (3+0) 3 credits F,S SU
Study and discussion of the development and improvement of curriculum practices, with special stress upon working out procedures suited to this area.

948 PROBLEMS IN TEACHING SECONDARY SUBJECTS (1+0) 1 to 6 credits F,S SU
Primarily for students who have completed undergraduate methods courses. 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. May be repeated to a maximum of 6 credits.

950 WORKSHOP IN AGRICULTURAL EDUCATION (1+0 per credit) 1 to 6 credits SU
Intensive study of a technical phase of agricultural education given in alternate years. (a) Agricultural education, (b) Animal science, (c) Agronomy, (d) Range science, (e) Soil science, (f) Veterinary science. May be repeated to a maximum of 6 credits.

952 WORKSHOP IN BUSINESS EDUCATION (2 to 6+0) 2 to 6 credits SU
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. May be repeated to a maximum of 6 credits.

958 INDIVIDUAL INSTRUCTION IN SECONDARY EDUCATION (0+1) 1 credit F,S SU
Selected basic problem related to the field of secondary education. (a) Teaching problems, (b) Curriculum, (c) Supervision, (d) Programmed instruction, (e) Junior high school, (f) Senior high school, (g) Area problems, (h) Research. May be repeated to a maximum of 4 credits.

959 SEMINAR IN SECONDARY EDUCATION
2 to 4 credits F,S SU
Prerequisite: graduate standing. May be repeated to a maximum of 4 credits.

971 OCCUPATIONAL EDUCATION IN SECONDARY SCHOOLS (3+0) 3 credits F SU
Nature and purposes of occupational education, including vocational-technical and distributive education; social and economic values for public school programs. Prerequisite: S.Ed. 457 or equivalent.

997 THESIS 1 to 6 credits F,S SU

Electrical Engineering (E.E.)

131 COMPUTER TECHNIQUES I (1 or 2+0) 1 or 2 credits F
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. 181.

132 COMPUTER TECHNIQUES II (1+0) 1 credit F,S
Solution of typical problems using the FORTRAN language. Prerequisite: E.E. 131.

198, 298, 398, 498 COOPERATIVE TRAINING REPORT
(1+0) 1 credit F,S SU
Preparation of written reports based on cooperative program assignments. Required of all students in cooperative programs during the summer or other semesters when on work assignments with cooperative program employers.

202 MATERIALS IN ELECTRICAL ENGINEERING
(1+3) 2 credits S
Properties, testing and use of materials in electrical engineering. Conductors, insulators, semiconductors, magnetic materials, and structural materials. Prerequisite: Chem. 101, Phys. 208. Corequisite: M.E. 241.

231 COMPUTERIZED MATRIX ALGEBRA I (1+0) 1 credit F
A 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 S
A 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.

240 ELECTRICAL INSTRUMENTATION FOR THE HEALTH SCIENCES (2+3) 3 credits
The theory and application of electrical devices for measurement, monitoring, and control of life processes and functional substitutes. Prerequisite: College algebra.

252 FUNDAMENTALS OF ELECTRICAL ENGINEERING
(3+0) 3 credits
Introduction to the basic concepts of electrical engineering. Study of static electric and magnetic fields, and the interrelations of electromagnetic field theory and network theory. Corequisite: Math 221 and 262.

291-292 ELECTRICAL PROJECTS LABORATORY
(0+3 or 6) 1 or 2 credits F-S
Offers the opportunity to undertake an independent project of the student's own interest, upon individual arrangement with a staff member. May be repeated to a maximum of 4 credits.

301 PRINCIPLES OF ELECTRICAL MEASUREMENT
(1+3) 2 credits F
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 S
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 F
Introduction to basic concepts in modern network theory from the Laplace transform approach. Conventional steady-state AC theory is treated as a specialization of the general theory. Prerequisite: Phys. 210 and Math. 221.

312, 612 NETWORK THEORY II (3+0) 3 credits S
Continuation of E.E. 311. Prerequisite: E.E. 311.

323, 623 ELEMENTS OF ELECTRICAL ENGINEERING
(2+0) 2 credits F
Primarily for nonscience or engineering majors to become acquainted with technological processes and their impact on man (and woman) and the rest of spaceship earth.

331 INTRODUCTION OF COMPUTERIZED LOGIC
(1+0) 1 credit F
An 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.

336 COMPUTER ACQUAINTANCE (1+0) 1 credit F,S
A 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 F,S
An introduction to the computer and its applications. 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 F,S
Computer projects of interest to each student. Prerequisite: E.E. 337 or equivalent. May be repeated to a maximum of 3 credits. (Same as Med.S. 338.)

340 ELECTRONICS FOR MEDICAL APPLICATIONS
(2+3) 3 credits
Electrical and electronic theory for life process and functional substitute applications. Prerequisite: Math. 182 and college physics.

341, 342, 343, 344 ELECTRO-MEDICAL INSTRUMENTATION I, II, III, IV (0+3) 1 credit
Application of electrical devices for diagnosis and control in medical applications. These courses are not sequential. Prerequisite: E.E. 340 or equivalent.

346, 646 MACHINERY AND ELECTRONICS (2+3) 3 credits S
Integrated course in machinery and electronics with industrial applications for nonelectrical engineering students. Prerequisite: E.E. 372.

350, 650 ELECTRIC SYSTEMS I (3+0) 3 credits S
Integrated course in energy conversion and electric machinery, including transformers, energy transformations, and storage of energy. Prerequisite: E.E. 311 and 355.

355, 655 ELECTRIC AND MAGNETIC FIELDS (3+0) 3 credits F
Vector analysis approach to the study of electric and magnetic fields, leading to the development of Maxwell's equations. Prerequisite: Phys. 210 and Math. 221.

360, 660 GENERATION AND DISTRIBUTION OF ELECTRIC POWER I (3+0) 3 credits S
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, 672 INTRODUCTION TO ELECTRONICS (3+0) 3 credits S
Integrated study of vacuum tube and semiconductor theory including the application of related devices. Includes the study of electron ballistics, vacuum tube and semiconductor diodes, photoelectricity power supplies, and small signal amplifiers. Prerequisite: E.E. 311.

373, 673 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 F
Characteristics of DC and AC circuits and machines, electric controls and instruments, measurements of electric power and energy. Prerequisite: Phys. 210 and Math. 281.

391-392 ELECTRICAL PROJECTS LABORATORY (0+3 or 6) 1 or 2 credits F-S
Offers the opportunity to undertake an independent project of the student's own interest, upon individual arrangement with a staff member. May be repeated to a maximum of 4 credits.

398 COOPERATIVE TRAINING REPORT (1+0) 1 credit F,S SU
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.

401 SYSTEMS MEASUREMENT TECHNIQUES (1+3) 2 credits F
Theory and techniques of measurement on complex systems by electrical means. Prerequisite: E.E. 302. Corequisite: E.E. 451 and 481.

402, 702 ADVANCED SYSTEM MEASUREMENT TECHNIQUES (1+3) 2 credits S
Continuation of E.E. 401 with emphasis on individual projects. Prerequisite: E.E. 401.

412, 712 ADVANCED NETWORK THEORY (3+0) 3 credits
Advanced topics in the Laplace transform and pole zero methods of network analysis, and elementary synthesis. Prerequisite: E.E. 312 and 372.

430, 730 NUMERICAL METHODS IN ELECTRICAL ENGINEERING (2+3) 3 credits
Numerical analysis and digital computer applications. Prerequisite: Math. 221.

431, 731 CIRCUIT LOGIC (3+0) 3 credits
(a) Combinatorial switching circuits, (b) Sequential switching circuits. These courses are sequential. Prerequisite: E.E. 372.

451, 751 ELECTRIC SYSTEMS II (3+0) 3 credits F
Continuation of E.E. 350. Prerequisite: E.E. 350.

455, 755 DISTRIBUTED SYSTEMS (3+0) 3 credits F
Systems where time of propagation of energy is not negligible. Prerequisite: E.E. 312 and 372.

461, 761 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.

462 ENGINEERING ANALYSIS (2+3) 3 credits S
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.

481, 781 ADVANCED ELECTRONICS (3+0) 3 credits F
Continuation of E.E. 372. Includes oscillators, modulation, demodulation, wave-shaping circuits, pulse circuits, cascaded and compensated amplifiers. Prerequisite: E.E. 372.

482, 782 ELECTRICAL COMMUNICATION (3+0) 3 credits
Application of electronic circuits to communication systems. Includes receivers, information and noise theory, propagation, antennas, and microwaves. Prerequisite: E.E. 312 and 481.

485, 785 FEEDBACK SYSTEMS (3+0) 3 credits F
Theory, analysis and synthesis of closed-loop systems. Prerequisite: E.E. 372. Corequisite: E.E. 451.

486, 786 FEEDBACK SYSTEMS LABORATORY (0+3) 1 credit F
Experimental laboratory course to accompany E.E. 485. Corequisite: E.E. 485.

487,787 SEMINAR 1 to 4 credits
Organized for advanced study and research under the direction of one or more staff members of the department. May be repeated to a maximum of 8 credits.

488 ENGINEERING ETHICS (1+0) 1 credit F
Study and discussion of the nontechnical aspects of the engineering profession. Prerequisite: senior standing.

489, 789 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, 790 ELECTRACOUSTICS (2+3) 3 credits
Theory of sonic and ultrasonic vibrations and acoustics, including electromechanical transducers. Prerequisite: E.E. 355.

492, 792 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.

495-496
795-796 INDEPENDENT STUDY IN ELECTRICAL ENGINEERING I AND II 1 to 3 credits each
Special projects or studies in electrical engineering. May be repeated to a maximum of 6 credits each.

903 INFORMATION AND COMMUNICATION THEORY (3+0) 3 credits each
(a) Information sources and measure, (b) Statistical description of communication systems, (c) Continuous signal and pulsed communication systems. These courses are sequential. Prerequisite: E.E. 481.

913 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. 412 and 485.

915 NANOSECOND PULSE SYSTEMS (3+0) 3 credits
Analysis of nanosecond pulse generation, transmission, and recording techniques, including study of pulse distortion. Prerequisite: E.E. 412 and 485.

921 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. 412 and 481.

951 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.

952 ELECTROMAGNETIC FIELD ANALYSIS II (1+0) 1 credit
A continuation of E.E. 951. Prerequisite: E.E. 951.

953 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. May be repeated to a maximum of 9 credits.

957 UNCONVENTIONAL POWER SOURCES (1+0) 1 credit
Energy conversion devices and systems other than conventional rotating machines. Prerequisite: E.E. 372 and 451.

961 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.

962 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.

974 POWER SYSTEM ANALYSIS (3+0) 3 credits each
(a) Transmission line and cable characteristics; synchronous machine constants, (b) Stability and symmetrical components, (c) Economic selection, operation and rate making. These courses are sequential. Prerequisite: E.E. 352 or 466.

975 MAGNETIC AND DIELECTRIC AMPLIFIERS (3+0) 3 credits
Study of the steady state and transient characteristics of magnetic and dielectric amplifiers, including the effects of feedback. Included is an analysis of the saturable reactor, magnetic elements in computers and in instrumentation. Prerequisite: E.E. 451.

981 MICROWAVES (3+0) 3 credits
Study of microwave devices and systems, including magnetrons, klystrons, traveling wave tubes and others, and associated components and systems. Prerequisite: E.E. 481.

982 ELECTRICAL COMPUTERS (3+0) 3 credits
Study of both 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.

983 MICROWAVE LABORATORY (0+3) 1 credit
Normally accompanying and having the same prerequisite as E.E. 981.

984 COMPUTER LABORATORY (0+3) 1 credit
Normally accompanying and having the same prerequisite as E.E. 982.

986 ADVANCED CONTROL SYSTEM THEORY (3+0) 3 credits
(a) Random signal response systems, (b) Sampled data systems, (c) Nonlinear control systems. These courses are not sequential. Prerequisite: E.E. 485.

987 SEMINAR 1 to 4 credits
Organized for advanced study and research under the direction of one or more staff members of the department. May be repeated to a maximum of 8 credits.

988 ADVANCED CONTROL SYSTEM THEORY II (3+0) 3 credits
System optimization and adaptive systems. Prerequisite: E.E. 489 or E.E. 986c.

995 READINGS AND CONFERENCES 1 to 3 credits
Special projects or studies in electrical engineering. May be repeated to a maximum of 6 credits.

996 PROFESSIONAL PAPER 2 credits F,S SU
Report required of M.S. Plan B candidates, based on research or engineering experience before entering the M.S. program.

997 THESIS 1 to 6 credits F,S SU

999 DISSERTATION 1 to 24 credits F,S SU

Inactive Course

941 ELECTROMAGNETIC FIELDS (3+0) 3 credits each

Electronics Engineering Technology (E.E.T.)

113 DIRECT CURRENT CIRCUITS (3+6) 5 credits F,S
Introduction to behavior of circuits containing resistance, capacitance, and inductance to direct voltages and currents. Application of Ohms law and Kirchoff's laws to DC circuit analysis. Electrical measurements.

122 ALTERNATING CURRENT CIRCUITS (3+6) 5 credits F,S
Behavior of electrical circuits containing R L and C to alternating voltages and currents. Phase relationship of AC voltages, currents, impedances. Application of vector algebra to AC circuit analysis. AC circuit measurements. Use of the oscilloscope. Prerequisite: E.E.T. 113 and Math. 111 or equivalent.

123 ELECTRONICS I (3+6) 5 credits F,S
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. 113.

252 ELECTRONIC SCIENCE (3+3) 4 credits F,S
Graphical and mathematical analysis of force; laws of motion machines, mechanical power, strength of material, fluid mechanics, and thermal conductivity; basic principles of physics.

253 ELECTRONICS II (3+6) 5 credits F,S
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. 122 and 123.

255 PULSE CIRCUITS (3+6) 5 credits S
Pulse amplifiers; wave shaping circuits to include differentiators, integrators, clippers and clampers, multivibrators, time base oscillators and swee; circuits; gating circuits; the application of pulse circuits as used in the oscilloscope. Prerequisite: E.E.T. 122, 123.

256 COMPUTER FUNDAMENTALS (3+6) 5 credits S
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. 122, 123.

260 RESEARCH REPORT (SPECIAL PROBLEM)
(0+6) 2 credits F,S
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 F,S
Principles of radar and microwave systems. Prerequisite: E.E.T. 123.

262 TELEVISION CIRCUITS (3+6) 5 credits F,S
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 F,S
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

115 BASIC ELECTRICITY AND ELECTRONICS (3+0) 3 credits S
254 TRANSMITTER THEORY AND OPERATION (3+6) 5 credits F,S

Elementary and Special Education

(See Education)

Engineering (Engr.)

180 INTRODUCTION TO FLIGHT I (2+0) 2 credits
Development of the science of aviation. Basic principles of flight. Field trips.

191 HOME TECHNOLOGY (3+0) 3 credits
A nontechnical emphasis on the problems associated with buying or building a home. Planning for function and site location, financial considerations, and the necessary electrical, mechanical, and structural systems are covered. *S/U only.*

201 ENGINEERING COMMUNICATION (2+2) 3 credits F,S
The gathering and organization of information, and the oral, written, and visual presentation of that information and its meaning. Prerequisite: sophomore standing.

English (Engl.)

Associate Degree Courses[1]

14 ELEMENTS OF ENGLISH USAGE (3+0) 3 credits
Study and practice of problems of using standard English, with attention to individual difficulties. Includes regular assignments in writing. Does not satisfy University requirement of Engl. 101 or 102.

15 TECHNICAL SEMINAR (2+0) 2 credits
Written and oral presentation on technical problems. Does not satisfy University requirement of Engl. 101 or 102.

50 EXPOSITORY WRITING (2 or 3+0) 2 or 3 credits
Practice in expository writing, with practice especially directed to the preparation of technical reports. Prerequisite: Engl. 14. Does not satisfy University requirement of Engl. 101 or 102.

Baccalaureate and Advanced Degree Courses

Stated prerequisities 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.*

B ENGLISH FOR FOREIGN STUDENTS (5+0) 0 credit F,S
Intensive practice in idiomatic English for students learning English as a second language: speaking, listening, reading, and writing.

[1]*Not applicable to baccalaureate and advanced degree programs.*

English

101 COMPOSITION AND RHETORIC (3+0) 3 credits
Reading and writing of English, with special attention to exposition and the investigative paper.

102 COMPOSITION AND LITERATURE (3+0) 3 credits
Continuation and extension of Engl. 101, with readings including literature as means to further training in exposition. Prerequisite: Engl. 101 or its equivalent, or superior performance on the ACT examination in English.

On the basis of performance in the ACT examination in English, students demonstrating superior training are placed directly in Engl. 102. Students receiving a final grade of A or B in Engl. 101 may, with approval of their adviser, elect to substitute for Engl. 102 certain courses approved by the University.

181 VOCABULARY AND MEANING (2+0) 2 credits
Problems of meaning, usage, 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 the Division of Independent Study only.

Literature for Appreciation

131 INTRODUCTION TO LITERATURE (2+0) 2 credits
Close reading of different types of literature, with emphasis on understanding and appreciation. Open to freshmen.

223 THEMES OF LITERATURE (2 or 3+0) 2 or 3 credits
Study of themes and ideas significant in literature. May be repeated to a maximum of 6 credits.

235 ENGLISH LITERATURE I (3+0) 3 credits
Study of representative authors and trends from the beginning to 1800.

236 ENGLISH LITERATURE II (3+0) 3 credits
Study of representative authors and trends from 1800 to the present.

241 SURVEY OF AMERICAN LITERATURE (3+0) 3 credits
Major American writers read and literary trends examined; intended for those who wish a general knowledge of American literature.

243 INTRODUCTION TO THE SHORT STORY (2+0) 2 credits
Short stories from various lands read and discussed; the short story is also considered as a form of literature.

247 INTRODUCTION TO THE NOVEL (2+0) 2 credits
Reading of significant novels for understanding and observation of the novel as a literary form.

261 INTRODUCTION TO POETRY (2+0) 2 credits
Reading and discussion of selected poems with attention to both content and method.

271 INTRODUCTION TO SHAKESPEARE (2+0) 2 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
Study of 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
The 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
The nature and function of language, with special application to literary study.

291 INTRODUCTION TO LITERARY STUDY (3+0) 3 credits
Critical examinations of creative writing and survey of basic methods of literary study.

292 LITERARY DOCUMENTS OF WESTERN CULTURE I (3+0) 3 credits
Readings from Homer to the Renaissance in English translation.

293 LITERARY DOCUMENTS OF WESTERN CULTURE II (3+0) 3 credits
Readings from the Renaissance to the twentieth century in English translation.

305-306 FUNDAMENTALS OF CREATIVE WRITING (2+0) 2 credits each
Conducted as a writer's workshop. Continued as Engl. 405-406. Prerequisite: submission of a sample of superior creative work.

311, 611 APPLIED LINGUISTICS (3+0) 3 credits
Modern approaches to language and their applications, designed for students 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 are required of all students. Prerequisite: Engl. 281 except for institute graduate students. (Same as Anth. 311.)

316, 616 LANGUAGE AND CULTURE (3+0) 3 credits
(See Anth. 316 for description.)

321 EXPOSITORY WRITING (3+0) 3 credits
Advanced composition: practice in various forms of expository prose writing.

333 FAR EASTERN LITERATURE (2 or 3+0) 2 or 3 credits
Chinese and Japanese literature in translation, with special emphasis on its relations with Western cultures.

337 THE BIBLE AS LITERATURE (3+0) 3 credits
Representative literary types found in the Old and New Testaments.

339 MYTHOLOGY AND FOLKLORE (3+0) 3 credits
Introduction to early literature as a revelation of the human mind, and 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
Literature of western United States and its relations to the cultural development of the area. Special attention paid to writers like Twain, Harte, Norris, Miller, London, Jeffers, and Clark.

345 LITERATURE OF ETHNIC MINORITIES (3+0) 3 credits
Literature of special groups within the American population, such as American Indians, Basques, Blacks, and Chicanos. Lower-division students may enroll in this course with the approval of the Chairman of the Department of English.

355 MODERN DRAMA (3+0) 3 credits
Representative plays from the literatures of various nations.

356 CONTEMPORARY DRAMA (3+0) 3 credits
Treats selected plays of the recent theatre, including current productions here and abroad.

385 DESCRIPTIVE GRAMMAR (3+0) 3 credits
Modern English grammar and usage. Designed primarily for prospective teachers. Prerequisite: Engl. 281.

405-406 ADVANCED TRAINING IN CREATIVE WRITING (2+0) 2 credits each
Continuation of Engl. 305-306.

411, 711 LINGUISTICS (3+0) 3 credits
Structural linguistics and other modern approaches to language. Prerequisite: Engl. 281 or 282. (Same as Anth. 411.)

413, 713 HISTORY OF THE LANGUAGE (3+0) 3 credits
History of English from its beginnings to the present. Prerequisite: Engl. 281 or 282.

415, 715 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.)

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
Study of Beowulf and the Germanic Heroic Age for undergraduate students. Prerequisite: Engl. 417 or equivalent.

419, 719 MODERN ENGLISH (3+0) 3 credits
The development of English from 1500 to the present. Prerequisite: Engl. 281 or 282.

421, 721 LITERARY CRITICISM (3+0) 3 credits
Survey of some of the major theories and methods of literary criticism, with emphasis on the work of modern critics. Prerequisite: Engl. 291.

423, 723 THEMES OF LITERATURE (2 or 3+0) 2 or 3 credits
Study of themes and ideas significant in literature and literary history. May be repeated to a maximum of 6 credits. Prerequisite: Engl. 291.

425, 725 THE BRITISH NOVEL I (3+0) 3 credits
Study of the British novel from its origins to about 1800. Prerequisite: Engl. 291.

426, 726 THE BRITISH NOVEL II (3+0) 3 credits
Study of the British novel from about 1800 to World War I. Prerequisite: Engl. 291.

441, 741 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. Prerequisite: Engl. 291.

445, 745 THE AMERICAN NOVEL (3+0) 3 credits
Study of the American novel from Cooper and Hawthorne to the present. Emphasis on the developing form of the novel in America. Prerequisite: Engl. 291.

446, 746 AMERICAN POETRY (3+0) 3 credits
Study of American poetry from the Puritans to the twentieth century. Emphasis on major nineteenth and twentieth century poets. Prerequisite: Engl. 291.

451, 751 CHAUCER (3+0) 3 credits S
Selections from the works of Chaucer read in the original language. Prerequisite: Engl. 281 or 282, and 291.

453, 753 THE HEROIC AND MEDIEVAL AGES (3+0) 3 credits
Surveys the principal genres from the heroic epic to the cyclical drama with indication of Continental relationships. Prerequisite: Engl. 291.

460, 760 ELIZABETHAN AND JACOBEAN DRAMA (3+0) 3 credits
Considers representative non-Shakespearean plays of the late sixteenth and early seventeenth centuries. Prerequisite: Engl. 291.

461, 761 THE RENAISSANCE (3+0) 3 credits
Considers major figures and developments in English prose and verse from 1500 to approximately 1603, excluding the drama. Prerequisite: Engl. 291.

463, 763 THE SEVENTEENTH CENTURY (3+0) 3 credits
Considers major figures and developments in English literature from approximately 1603 to 1660, excluding the drama and Milton.

464, 764 MILTON (3+0) 3 credits
Intensive study of Milton's poetry and selected prose. Prerequisite: Engl. 291.

465, 765 SHAKESPEARE (3+0) 3 credits
Deals with Shakespeare's better known plays with special problems of Shakespeare study. Prerequisite: Engl. 291.

469 INDIVIDUAL AUTHORS (BEFORE 1800)
(2 or 3+0) 2 or 3 credits
Undergraduate seminar on one or two authors (e.g., Pope, Boswell and Johnson, Dryden). Authors and credits listed in class schedule. Prerequisite: Engl. 291.

470, 770 RESTORATION AND EIGHTEENTH CENTURY DRAMA (3+0) 3 credits
Surveys English drama from approximately 1660 to the beginning of the Romantic movement. Prerequisite: Engl. 291.

471, 771 RESTORATION AND EIGHTEENTH CENTURY LITERATURE (3+0) 3 credits
Surveys English literature and its foreign relations during the eighteenth century. Prerequisite: Engl. 291.

475, 775 THE ROMANTIC MOVEMENT (3+0) 3 credits
Surveys English literature and its foreign relations during the Romantic Period. Prerequisite: Engl. 291.

481, 781 THE VICTORIAN PERIOD (3+0) 3 credits
Surveys the social and artistic movements of the later nineteenth century as revealed in English poetry and prose. Prerequisite: Engl. 291.

483, 783 TWENTIETH CENTURY BRITISH AND AMERICAN POETRY (3+0) 3 credits
Treats selected representative poetry written in the English language. Prerequisite: Engl. 291.

484, 784 TWENTIETH CENTURY BRITISH AND AMERICAN FICTION (3+0) 3 credits
Treats selected and representative fiction written in English, with particular emphasis upon the novel. Prerequisite: Engl. 291.

485, 785 STUDIES IN TWENTIETH CENTURY LITERATURE
(3+0) 3 credits
Cross-generic studies in twentieth century British and American literature. Prerequisite: Engl. 291.

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. Prerequisite: Engl. 291.

495 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in English. May be repeated to a maximum of 6 credits.

911 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.

912 OLD NORSE (3+0) 3 credits
Introduction to Old Norse language and literature.

913 PROBLEMS IN LANGUAGE (3+0) 3 credits
Typical problems in the advanced study of language. Prerequisite: Engl. 411 or equivalent. May be repeated to a maximum of 6 credits. (Same as Anth. 913.)

914 PROBLEMS IN MODERN GRAMMATICAL STUDY
(3+0) 3 credits
Examination of important current grammatical descriptions, especially of English. Prerequisite: Engl. 411 or equivalent. May be repeated to a maximum of 6 credits.

915 SEMINAR IN PHILOLOGY AND LINGUISTICS
(3+0) 3 credits
Special problems in philology and linguistics. Prerequisite: Engl. 411 or equivalent. May be repeated to a maximum of 6 credits.

917 OLD ENGLISH (3+0) 3 credits
Introduction to Old English language and literature.

918 BEOWULF (3+0) 3 credits
Study of Beowulf and the Germanic Heroic Age. Prerequisite: Engl. 917 or equivalent.

919 MIDDLE ENGLISH (3+0) 3 credits
Introduction to Middle English language and literature. Prerequisite: Engl. 451 or equivalent.

921 PROBLEMS IN THE HISTORY OF LITERARY CRITICISM
(3+0) 3 credits F
Survey of important critical modes and approaches from Plato and Aristotle to the present.

922 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.

923 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.

924 LINGUISTIC FIELD METHODS (2 or 4+0) 2 or 4 credits
(See Anth. 924 for description.)

925 PROBLEMS IN THE NOVEL (3+0) 3 credits
Intensive study of the novel, with attention to its history and development. May be repeated to a maximum of 6 credits.

926 PROBLEMS IN LITERARY FORM (3+0) 3 credits
Generic or cross generic studies of literary structure. May be repeated to a maximum of 6 credits.

933 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.

935 SEMINAR IN RHETORIC AND COMPOSITION
(3+0) 3 credits
Study of rhetorical problems. May be repeated to a maximum of 6 credits.

937 COLLEGE TEACHING IN LANGUAGE AND LITERATURE
(1 to 3+0) 1 to 3 credits
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. May be repeated to a maximum of 6 credits. *S/U only.*

938 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. May be repeated to a maximum of 6 credits.

941 PROBLEMS IN EARLY AMERICAN LITERATURE (3+0) 3 credits
Selected subjects in early American literature. Prerequisite: Engl. 443 or equivalent. May be repeated to a maximum of 6 credits

943 PROBLEMS IN LATER AMERICAN LITERATURE (3+0) 3 credits
Companion course to Engl. 941. Prerequisite: Engl. 444 or equivalent. May be repeated to a maximum of 6 credits.

953 PROBLEMS IN CHAUCER (3+0) 3 credits
Selected problems in Chaucer. Prerequisite: Engl. 451 or equivalent. May be repeated to a maximum of 6 credits.

961 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. May be repeated to a maximum of 6 credits.

962 PROBLEMS IN SEVENTEENTH CENTURY LITERATURE (3+0) 3 credits
Companion course to Engl. 961. Prerequisite: Engl. 461 or equivalent. May be repeated to a maximum of 6 credits.

964 PROBLEMS IN NON-SHAKESPEAREAN DRAMA (3+0) 3 credits
Sixteenth and seventeenth century drama exclusive of Shakespeare. Prerequisite: Engl. 461 or equivalent. May be repeated to a maximum of 6 credits.

965 PROBLEMS IN SHAKESPEARE (3+0) 3 credits
Intensive study of the works of Shakespeare. Prerequisite: Engl. 465 or equivalent. May be repeated to a maximum of 6 credits.

967 PROBLEMS IN MILTON (3+0) 3 credits
Intensive study in the works of Milton. Prerequisite: Engl. 464 or equivalent. May be repeated to a maximum of 6 credits.

971 PROBLEMS IN THE AGE OF REASON (3+0) 3 credits
Considers special figures or aspects of the period. Prerequisite: Engl. 471 or equivalent. May be repeated to a maximum of 6 credits.

975 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. May be repeated to a maximum of 6 credits.

981 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. May be repeated to a maximum of 6 credits.

983 PROBLEMS IN EARLY TWENTIETH CENTURY BRITISH LITERATURE (3+0) 3 credits
Intensive study of British and Irish literature of the early twentieth century. May be repeated to a maximum of 6 credits.

985 PROBLEMS IN CONTEMPORARY AMERICAN LITERATURE (3+0) 3 credits
Intensive study of selected contemporary American writers or current literary movements. May be repeated to a maximum of 6 credits.

987 PROBLEMS IN CONTEMPORARY BRITISH LITERATURE (3+0) 3 credits
Contemporary literature studied with emphasis upon movements which center in Great Britain. May be repeated to a maximum of 6 credits.

988 PROBLEMS IN MODERN COMPARATIVE LITERATURE (3+0) 3 credits
Modern literature studied with emphasis upon international movements. May be repeated to a maximum of 6 credits.

995 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.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Inactive Courses

253 INTRODUCTION TO DRAMA (2+0) 2 credits
323, 623 PRINCIPLES OF LITERARY ANALYSIS (2+0) 2 credits
452, 752 CHAUCER (3+0) 3 credits
462, 762 THE RENAISSANCE (2+0) 2 credits
939 SUPERVISION OF COURSES IN EXPOSITION (3+0) 3 credits

Entomology (Ent.)

Baccalaureate and Advanced Degree Courses

391, 691 GENERAL ECONOMIC ENTOMOLOGY (2+3) 3 credits F
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. 102.

412, 712 INSECT PESTS OF PLANTS (3+0) 3 credits
A detailed study including principles of control of more economic species of insects and related organisms which affect production of plants. Prerequisite: Ent. 391 or Zool. 359. (Offered in even-numbered years.)

422, 722, INSECT PESTS OF ANIMALS (3+0) 3 credits
A 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 Zool. 359. (Offered in odd-numbered years.)

920 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.

931 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 S
400 UNDERGRADUATE SEMINAR (1+0) 1 credit

Environmental Studies Board (Env.)

101 MAN AND ENVIRONMENT (3+0) 3 credits
An interdisciplinary, introductory survey of the ecology of natural systems with emphasis on the relationship of man to the environment.

292 COMMUNITY ENVIRONMENTAL PROBLEMS (2+0) 2 credits
(See Geog. 292 for description.)

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 H.Ec. 294.)

Foreign Languages and Literatures

Basque (Basq.)

150-151 ELEMENTARY BASQUE (3+0) 3 credits each
Introduction to listening, speaking, reading, and writing. Does not apply toward Arts and Science foreign language requirement. Prerequisite to Basq. 151 is 150.

351, 651 INTRODUCTION TO BASQUE LITERATURE (3+0) 3 credits
The literature of the Basques in Basque, French, and Spanish. Readings in English translation. Course conducted in English.

366, 666 OLD WORLD BASQUE CULTURE (3+0) 3 credits
Intensive study of the Basque people of Southern Europe both in historical perspective and contemporary society; the historical events and social structural features which have stimulated or facilitated extensive Basque emigration to other parts of the world including the American West. Prerequisite: Anth. 100 or 101. (Same as Anth. 366.)

455, 755 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.)

495-496
795-796 INDEPENDENT STUDY 1 or 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

French (Fr.)

103-104 ELEMENTARY FRENCH (3+0) 3 credits each
Development of language skills through practice in listening, speaking, reading and writing; structural analysis. Language laboratory practice strongly recommended. Prerequisite to Fr. 104 is Fr. 103. Completion of this course and Fr. 205, 207 and 209 will satisfy the Arts and Science foreign language requirement.

105-106 ORAL FRENCH (2+0) 2 credits each
Development of speaking and listening comprehension skills. This course complements Fr. 103-104, is required of majors and teaching minors and is recommended for all students who wish to emphasize the spoken language. May not be taken unless student is concurrently enrolled in Fr. 103-104. Language laboratory practice required as part of homework assignments. Prerequisite to Fr. 106 is Fr. 103 and 105. This course is a prerequisite to Fr. 203-204.

203-204 SECOND YEAR FRENCH (3+0) 3 credits
Structural review, conversation and writing, readings in modern literature. Prerequisite to Fr. 203 is Fr. 104 and 106 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
A reading course for nonmajors. Review of grammar; vocabulary building and verb recognition; exercises in reading. Prerequisite: Fr. 104. Completion of this course and Fr. 207 and 209 satisfies the Arts and Science foreign language requirement.

207 READING FRENCH II (2+0) 2 credits
A reading course for nonmajors. Continued review of grammar and development of reading skills. Prerequisite: Fr. 205. Completion of this course and Fr. 209 satisfies the Arts and Science foreign language requirement.

209 READING FRENCH III (2+0) 2 credits
A specialized reading course for nonmajors. Normally to be taken in the senior year. Readings in the specific area of the student's major in consultation with his adviser. Prerequisite: Fr. 207. Completion of Fr. 209 satisfies the Arts and Science foreign language requirement.

221 FRANCE AND ITS CULTURE (3+0) 3 credits
An 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.

301, 601 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.

305-306
605-606 FRENCH COMPOSITION (2+0) 2 credits each
Development of directed and creative writing skills in French. Not available for graduate credit to master of arts 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. May be repeated to a maximum of 4 credits.

357-358
657-658 SURVEY OF FRENCH LITERATURE (3+0) 3 credits each
Comprehensive view of French literature from its beginning to the present day. Prerequisite: Fr. 204. Not applicable to an advanced degree in French.

The prerequisite for all French 400-level literature courses is Fr. 305-306 and 6 credits from Fr. 221, 357, 358.

407-408
707-708 ADVANCED FRENCH COMPOSITION AND CONVERSATION (3+0) 3 credits each
Prerequisite: Fr. 306; prerequisite to Fr. 408 is Fr. 407.

441, 741 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3+0) 2 or 3 credits
Study of selected themes, ideas, authors, works, or periods in French language or literature. Topics vary from semester to semester. May be repeated to a maximum of 6 credits.

455, 755 APPLIED FRENCH LINGUISTICS (3+0) 3 credits
Introduction to linguistic concepts and contrastive linguistics. Projects by students applying the principles of contrastive linguistics to the teaching of French. Prerequisite: Fr. 306.

469-470
769-770 THE SEVENTEENTH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Trends of seventeenth century literature and thought.

473-474
773-774 THE EIGHTEENTH CENTURY IN FRENCH LITERATURE (2+0) 2 credits each
Literature and thought of the Age of Enlightenment.

477-478
777-778 THE NINETEENTH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Main literary and intellectual trends from Romanticism to Naturalism.

491-492
791-792 THE TWENTIETH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Main currents of twentieth century prose, poetry and theater.

495-496
795-796 INDEPENDENT STUDY 1 or 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Prerequisite for all following courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

901 SUPERVISED TEACHING IN COLLEGE 1 to 3 credits
Directed experience in college teaching. Preparation, presentation of material and testing undergraduate students in lectures, discussion sections or laboratories. One class meeting per credit plus one hour of discussion and evaluation. May be repeated to a maximum of 4 credits. Prerequisite: undergraduate major in the subject or equivalent. *S/U only.*

955-956 EXPLICATION DE TEXTES (2+0) 2 credits each
French method of *explication de textes* applied to selected prose and poetry of principal French writers.

961 STUDIES IN THE FRENCH RENAISSANCE AND BAROQUE (3+0) 3 credits
Development of the Renaissance and Baroque periods with particular reference to Rabelais, the Pleiade, and Montaigne.

969 STUDIES IN SEVENTEENTH CENTURY FRENCH LITERATURE 2 or 3 credits
Seminar in literary problems of the century, considered by genre or by author. May be repeated to a maximum of 9 credits

973 STUDIES IN EIGHTEENTH CENTURY FRENCH LITERATURE 2 or 3 credits
Special consideration of various authors or aspects of the period. May be repeated to a maximum of 9 credits.

977 STUDIES IN NINETEENTH CENTURY FRENCH LITERATURE 2 or 3 credits
Seminar in selected literary schools and movements of the century, selected authors or genres. May be repeated to a maximum of 9 credits.

991 STUDIES IN TWENTIETH CENTURY FRENCH LITERATURE 2 or 3 credits
Problems of modern and contemporary literature; selected authors, movements, schools; influences, genres. May be repeated to a maximum of 9 credits.

993 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. May be repeated to a maximum of 9 credits.

995-996 SPECIAL STUDY FOR GRADUATE STUDENTS 1 to 3 credits
May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits

Inactive Courses

458, 758 INTRODUCTION TO THE HISTORY OF THE FRENCH LANGUAGE (3+0) 3 credits
463-464
763-764 MEDIEVAL FRENCH LITERATURE (2+0) 2 credits each
465-466
765-766 THE SIXTEENTH CENTURY IN FRENCH LITERATURE (2+0) 2 credits each
913 PROBLEMS IN FRENCH PHILOLOGY AND LINGUISTICS (3+0) 3 credits
915 OLD FRENCH (2+0) 2 credits

German (Ger.)

103-104 ELEMENTARY GERMAN (3+0) 3 credits each
Development of language skills through practice in listening, speaking, reading, and writing; structural analysis. Language laboratory practice strongly recommended. Prerequisite to Ger. 104 is Ger. 103. Completion of this course and Ger. 205, 207 and 209 satisfies the Arts and Science foreign language requirement.

105-106 ORAL GERMAN (2+0) 2 credits each
Development of speaking and listening comprehension skills. This course complements Ger. 103-104, is required of majors and teaching minors and is recommended for all students who wish to emphasize the spoken language. May not be taken unless student in concurrently enrolled in Ger. 103-104. Language laboratory practice required as part of homework assignments. Prerequisite to Ger. 106 is Ger. 103 and 105. This course is a prerequisite to Ger. 203-204.

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. 104 and 106 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
A reading course for nonmajors. Review of grammar; vocabulary building and verb recognition; exercises in reading. Prerequisite: Ger. 104. Completion of this course, Ger. 207 and 209 satisfies the Arts and Science foreign language requirement.

207 READING GERMAN II (2+0) 2 credits
A reading course for nonmajors. Continued review of grammar and development of reading skills. Prerequisite: Ger. 205. Completion of this course and Ger. 209 satisifes the Arts and Science foreign language requirement.

209 READING GERMAN III (2+0) 2 credits
A specialized reading course for nonmajors. Normally to be taken in the senior year. Readings in the specific area of the student's major in consultation with his adviser. Prerequisite: Ger. 207. Completion of Ger. 209 satisfies the Arts and Science foreign language requirement.

221 GERMAN SPEAKING EUROPE AND ITS CULTURE (3+0) 3 credits
An 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.

301, 601 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
605-606 GERMAN COMPOSITION (2+0) 2 credits each
Not available for graduate credit to master of arts 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. May be repeated to a maximum of 4 credits.

311, 611 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 master of arts candidates in German. Prerequisite: Ger. 204. Not applicable to an advanced degree in German.

The prerequisites for all German 400-level literature courses are German 305-306 and 3 credits from German 221 or 311.

407-707 ADVANCED GERMAN GRAMMAR (3+0) 3 credits
Prerequisite: Ger. 306 or equivalent.

408-708 ADVANCED GERMAN COMPOSITION (3+0) 3 credits
Prerequisite: Ger. 407 or equivalent.

435-436
735-736 THE AGE OF GOETHE (3+0) 3 credits each
Comprehensive view of German literature from 1750 to 1830.

441, 741 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3+0) 2 or 3 credits
Study of selected themes, ideas, authors, works, or periods in German language or literature. Topics vary from semester to semester. May be repeated to a maximum of 6 credits.

455, 755 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, 758 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
759-760 HISTORY OF GERMAN LITERATURE (3+0) 3 credits each
Comprehensive view of German literature from its beginning to the present day.

467, 767 LESSING (3+0) 3 credits
Chief dramatic and critical works of Lessing.

468, 768 SCHILLER (3+0) 3 credits
Selections from Schiller's chief poetic, dramatic and aesthetic works.

469, 769 GOETHE (3+0) 3 credits
Selected works of Goethe exclusive of Faust.

470-770 GOETHE'S "FAUST" (3+0) 3 credits
Parts I and II.

471, 771 GERMAN LYRIC POETRY (3+0) 3 credits
The study of German lyric poetry from the seventeenth century to the present.

472, 772 NINETEENTH CENTURY GERMAN LITERATURE (3+0) 3 credits
Studies in German literature from 1830 to 1880.

477-777 THE GERMAN "NOVELLE" (3+0) 3 credits each
Development of the "Novelle" from the Romantic Period to modern times. Reading and discussion.

491-791 TWENTIETH CENTURY GERMAN LITERATURE (3+0) 3 credits
Main currents of German prose, poetry, and drama since 1890.

495-496
795-796 INDEPENDENT STUDY 1 or 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Prerequisite for all following courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

901 SUPERVISED TEACHING IN COLLEGE 1 to 3 credits
Directed experience in college teaching. Preparation, presentation of material and testing undergraduate students in lectures, discussion sections, or laboratories. One class meeting per credit plus one hour of discussion and evaluation. May be repeated to a maximum of 4 credits. Prerequisite: undergraduate major in the subject or equivalent. *S/U only.*

909 CRITICAL AND CREATIVE WRITING IN GERMAN (2+0) 2 credits
Study and practice of the use of German in criticism and creative writing. May be repeated to a maximum of 6 credits.

941 THE AGE OF ENLIGHTENMENT IN GERMANY (3+0) 3 credits
Studies in German literature of the Enlightenment. May be repeated to a maximum of 6 credits.

951 GOETHE AND HIS CONTEMPORARIES (3+0) 3 credits
Studies in the literature of the German *Sturm und Drang, Klassik,* and *Romantik.* May be repeated to a maximum of 6 credits.

961 GERMAN REALISM (3+0) 3 credits
Studies in the literature of Poetic Realism and Realism. May be repeated to a maximum of 6 credits.

981 THE MODERN AGE IN GERMANY (3+0) 3 credits
Studies in German literature from Naturalism to the present. May be repeated to a maximum of 6 credits.

995-996 SPECIAL STUDY FOR GRADUATE STUDENTS 1 to 3 credits each
May be repeated up to 6 credits.

997 THESIS 1 to 6 credits.

Inactive Courses

913 PROBLEMS IN GERMANIC PHILOLOGY AND LINGUISTICS (3+0) 3 credits
914 GOTHIC (3+0) 3 credits
915-916 MIDDLE HIGH GERMAN LANGUAGE AND LITERATURE (3+0) 3 credits each
931 GERMAN RENAISSANCE, REFORMATION AND BAROQUE (3+0) 3 credits

Italian (Ital.)

103-104 ELEMENTARY ITALIAN (3+0) 3 credits each
Development of language skills through practice in listening, speaking, reading and writing; structural analysis. Language laboratory practice strongly recommended. Prerequisite to Ital. 104 is Ital. 103. Completion of this course and Ital. 203 and 204 satisfies the Arts and Science foreign language requirement.

105-106 ORAL ITALIAN (2+0) 2 credits each
Development of speaking and listening comprehension skills. This course complements Ital. 103-104, is required of teaching minors, and is recommended for all students who wish to emphasize the spoken language. May not be taken unless student is concurrently enrolled in Ital. 103-104. Language laboratory practice required as part of homework assignments. Prerequisite to Ital. 106 is Ital. 103 and 105.

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. 104 or equivalent. Prerequisite to Ital. 204 is Ital. 203 or equivalent. Completion of Ital. 204 satisfies the Arts and Science foreign language requirement.

495-496
795-796 INDEPENDENT STUDY 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Inactive Courses

305-306
605-606 INTERMEDIATE ITALIAN COMPOSITION AND CONVERSATION (3+0) 3 credits each
351-352
651-652 THE ITALIAN NOVEL (2+0) 2 credits each
381-382
681-682 ITALIAN LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES (2+0) 2 credits each

Latin (Lat.)

103-104 ELEMENTARY LATIN (3+0) 3 credits each
Introduction to Latin grammar with exercises in translation and composition. Prerequisite to Lat. 104 is Lat. 103.

203 CAESAR (3+0) 3 credits
Selected readings from the "Gallic Wars." Exercises in style composition. Prerequisite: Lat. 104 or equivalent.

204 CICERO (3+0) 3 credits
Readings from the chief orations and essays of Cicero. Prerequisite: Lat. 203.

495-496
795-796 INDEPENDENT STUDY 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Inactive Courses

305 VERGIL (3+0) 3 credits
306 OVID (3+0) 3 credits

Portuguese (Port.)

103-104 ELEMENTARY PORTUGUESE (3+0) 3 credits each
Development of language skills through practice in listening, speaking, reading and writing; structural analysis. Language laboratory practice strongly recommended. Prerequisite to Port. 104 is Port. 103. Completion of this course and Port. 203-204 satisfies the Arts and Science foreign language requirement.

105-106 ORAL PORTUGUESE (2+0) 2 credits each
Development of speaking and listening comprehension skills. This course complements Port. 103-104, is required of teaching minors and is recommended for all students who wish to emphasize the spoken language. May not be taken unless student is concurrently enrolled in Port. 103-104. Language laboratory practice required as part of homework assignments. Prerequisite to Port. 106 is Port. 103 and 105.

203-204 SECOND YEAR PORTUGUESE (3+0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to Port. 203 is Port. 104 or Span. 306 or equivalent. Prerequisite to Port. 204 is Port. 203 or equivalent. Completion of Port. 204 satisfies the Arts and Science foreign language requirement.

305-306
605-606 PORTUGUESE COMPOSITION (2+0) 2 credits each
Studies of syntax and idiomatic usage. Prerequisite: Port. 204; prerequisite to Port. 306 is Port. 305.

309 PORTUGUESE CONVERSATION (0+2) 1 credit
Prerequisite: Port. 204. May be repeated to a maximum of 4 credits.

357-657 SELECTED READINGS IN PORTUGUESE AND BRAZILIAN LITERATURES (3+0) 3 credits
Selective readings in Portuguese and Brazilian literatures from their beginnings to the present day. Prerequisite: Port. 204 or equivalent.

495-496
795-796 INDEPENDENT STUDY 1 or 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Russian (Russ.)

103-104 ELEMENTARY RUSSIAN (3+0) 3 credits each
Development of language skills through practice in listening, speaking, reading, and writing; structural analysis. Language laboratory practice strongly recommended. Prerequisite to Russ. 104 is Russ. 103. Completion of this course and Russ. 203-204 satisfies the Arts and Science foreign language requirement.

105-106 ORAL RUSSIAN (2+0) 2 credits each
Development of speaking and listening comprehension skills. This course complements Russ. 103-104, is required of teaching minors and is recommended for all students who wish to emphasize the spoken language. May not be taken unless student is concurrently enrolled in Russ. 103-104. Language laboratory practice required as part of homework assignments. Prerequisite to Russ. 106 is Russ. 103 and 105.

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. 104 or equivalent. Prerequisite to Russ. 204 is Russ. 203. Completion of Russ. 204 satisfies the Arts and Science foreign language requirement.

495-496
795-796 INDEPENDENT STUDY 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Inactive Courses

305-306
605-606 INTERMEDIATE RUSSIAN COMPOSITION AND CONVERSATION (3+0) 3 credits each
357-358
657-658 SURVEY OF RUSSIAN LITERATURE (3+0) 3 credits each

Spanish (Span.)

103-104 ELEMENTARY SPANISH (3+0) 3 credits each
Development of language skills through practice in listening, speaking, reading, and writing; structural analysis. Language laboratory practice strongly recommended. Prerequisite to Span. 104 is Span. 103. Completion of this course and Span. 205, 207, and 209 satisfies the Arts and Science foreign language requirement.

105-106 ORAL SPANISH (2+0) 2 credits each
Development of speaking and listening comprehension skills. This course complements Span. 103-104, is required of majors and teaching minors and is recommended for all students who wish to emphasize the spoken language. May not be taken unless student is concurrently enrolled in Span. 103-104. Language laboratory practice required as part of homework assignments. Prerequisite to Span. 106 is Span. 103 and 105. This course is a prerequisite to Span. 203-204.

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. 104 and 106 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
A reading course for nonmajors. Review of grammar; vocabulary building and verb recognition; exercises in reading. Prerequisite: Span. 104. Completion of this course, Span. 207 and 209 satisfies the Arts and Science foreign language requirement.

207 READING SPANISH II (2+0) 2 credits
A reading course for nonmajors. Continued review of grammar and development of reading skills. Prerequisite: Span. 205. Completion of this course and Span. 209 satisfies the Arts and Science foreign language requirement.

209 READING SPANISH III (2+0) 2 credits
A specialized reading course for nonmajors. Normally to be taken in the senior year. Readings in the specific area of the student's major in consultation with his adviser. Prerequisite: Span. 207. Completion of Span. 209 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.

301, 601 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
605-606 SPANISH COMPOSITION (2+0) 2 credits each
Studies of 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. May be repeated to a maximum of 4 credits.

311, 611 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 master of arts candidates in Spanish. Prerequisite: Span. 204 or equivalent.

357-657 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.

359-659 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.

The prerequisite for all Spanish 400-level literature courses is Span. 305-306, 311 and 6 credits from Span. 221, 222, 357, or 359.

410, 710 SPANISH STYLISTICS (3+0) 3 credits
A course designed to help the mature language student achieve a personal style in written and spoken Spanish. Prerequisite: Span. 306 or equivalent. May be repeated to a maximum of 6 credits.

441, 741 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3+0) 2 or 3 credits
Study of selected themes, ideas, authors, works, or periods in Hispanic languages or literatures. Topics vary from semester to semester. May be repeated to a maximum of 6 credits.

455, 755 APPLIED SPANISH LINGUISTICS (3+0) 3 credits
Introduction to basic linguistic concepts and contrastive linguistics. Projects by students applying the principles of contrastive linguistics to the teaching of Spanish. Prerequisite: Span. 306.

462, 762 MEDIEVAL AND EARLY RENAISSANCE SPANISH LITERATURE (3+0) 3 credits
Includes the period of the Catholic Kings.

464, 764 SPANISH GOLDEN AGE PROSE (3+0) 3 credits
Prose forms of the sixteenth and seventeenth centuries with emphasis on Cervantes.

466, 766 SPANISH GOLDEN AGE POETRY (3+0) 3 credits
Poetry of the sixteenth and seventeenth centuries, from Garcilasco to Góngora.

469-769 SPANISH GOLDEN AGE DRAMA (3+0) 3 credits each
Theater of the sixteenth and seventeenth centuries from Torres Naharro to Calderon de la Barea.

476,776 THE EIGHTEENTH CENTURY IN SPAIN (3+0) 3 credits
Neoclassical and traditional writers in the eighteenth century.

477-777 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, 784 SPANISH-AMERICAN DRAMA (3+0) 3 credits
History and development of the theater in Spanish America.

485, 785 SPANISH-AMERICAN POETRY (3+0) 3 credits
Spanish-American poetry from the discovery to the present day.

486, 786 SPANISH-AMERICAN NOVEL (3+0) 3 credits
Study of the novel in Spanish America from colonial times to the present.

487, 787 SPANISH-AMERICAN SHORT STORY AND ESSAY (3+0) 3 credits
Study of the short story and essay in Spanish America from the conquest to the present day.

491-791 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, 793 THE SHORT STORY IN SPANISH LITERATURE (3+0) 3 credits
Study of the short story from early times to the present day.

495-496
795-796 INDEPENDENT STUDY 1 or 2 credits each
Open to qualified students. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits for each course number.

Prerequisite for all following courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

901 SUPERVISED TEACHING IN COLLEGE 1 to 3 credits
Directed experience in college teaching. Preparation, presentation of material, and testing undergraduate students in lectures, discussion sections, or laboratories. One class meeting per credit plus one hour of discussion and evaluation. May be repeated to a maximum of 4 credits. Prerequisite: undergraduate major in the subject or equivalent. *S/U only.*

951 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. May be repeated to a maximum of 6 credits.

963 STUDIES IN SPANISH LITERATURE OF THE GOLDEN AGE (3+0) 3 credits
Special consideration of selected authors or aspects of the period. May be repeated to a maximum of 9 credits.

965 CERVANTES (3+0) 3 credits
Seminar on the works of Cervantes.

973 STUDIES IN SPANISH-AMERICAN POETRY (3+0) 3 credits
Critical study of poetry in Spanish America with emphasis on the *modernista* movement.

974 STUDIES IN THE SPANISH-AMERICAN NOVEL (3+0) 3 credits
Development of the novel in Spanish America. May be repeated to a maximum of 6 credits.

975 STUDIES IN EIGHTEENTH CENTURY SPANISH LITERATURE (3+0) 3 credits
Seminar in selected literary schools and movements. May be repeated to a maximum of 6 credits if topic is alternated.

977 STUDIES IN NINETEENTH CENTURY SPANISH LITERATURE (3+0) 3 credits
Seminar on selected movements, authors, or genres in Spanish literature of the nineteenth century. May be repeated to a maximum of 6 credits.

991 STUDIES IN SPANISH LITERATURE OF THE TWENTIETH CENTURY (3+0) 3 credits
Problems of modern and contemporary literature; selected authors, movements; influences, genres. May be repeated to a maximum of 9 credits.

993 SPECIAL TOPICS IN SPANISH LITERATURE (3+0) 3 credits
Special topics in literary movements, authors, genres, literary criticism, etc. May be repeated to a maximum of 9 credits.

994 SPECIAL TOPICS IN SPANISH-AMERICAN LITERATURE (3+0) 3 credits
Seminar in selected authors, genres, movements, literary criticism, etc. May be repeated to a maximum of 9 credits.

995-996 SPECIAL STUDY FOR GRADUATE STUDENTS 1 to 3 credits each
May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits

Inactive Courses

458, 758 INTRODUCTION TO THE HISTORY OF THE SPANISH LANGUAGE (3+0) 3 credits
915 OLD SPANISH (3+0) 3 credits

Geography (Geog.)

103 PHYSICAL GEOGRAPHY (3+0 or 3) 3 or 4 credits F,S
Physical elements of geography. Earth and its representation. Nature and distribution of climate, landforms, natural vegetation, and soils. May be taken with or without laboratory.

106 INTRODUCTION TO CULTURAL GEOGRAPHY (3+0) 3 credits F,S
Systematic consideration of the spatial aspects of elements composing human culture with the view of seeing order in diversity with the world of man. Kramer.

109 ECONOMIC GEOGRAPHY I (3+0) 3 credits F
Focus is on world-wide patterns of economic activity. Production activities are emphasized, with some attention to exchange and consumption. Concentrates upon primary industries and their commodities — agriculture, mining, fishing, and forest production.

110 ECONOMIC GEOGRAPHY II (3+0) 3 credits S
Focus is on world-wide patterns of economic activity. Production activities are emphasized, with some attention to exchange and consumption. Focuses upon secondary industries and commodities (manufacturing) and tertiary activities (trades and services).

211 MAPS AND THEIR INTERPRETATION (1+3) 2 credits S
Introduction to maps and their use. Laboratory exercises in the interpretation of maps including topographic types.

212 CARTOGRAPHY (2+3) 3 credits S
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.

232 SOILS (2+3) 3 credits S
(See P.S.W. 222 for description.)

292 COMMUNITY ENVIRONMENTAL PROBLEMS (2+0) 2 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 F,S
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. Kersten, Kramer.

314, 614 FIELD METHODS (1+6) 3 credits S
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. Kramer.

319, 619 GEOGRAPHY OF WORLD AFFAIRS (3+0) 3 credits F
Workshop to develop the technique of interpreting current world events in the geographic framework in which such events occur. Prerequisite: introductory geography course. Kramer.

322, 622 CLIMATOLOGY (3+0) 3 credits F
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. Houghton.

325, 625 BIOCLIMATOLOGY (3+0) 3 credits F
(See P.S.W. 331 for description.)

331, 631 LANDFORMS (3+0) 3 credits S
Origin, description, and classification of landforms. Distribution of landforms with special reference to United States. Two or three all-day field trips. Prerequisite: Geol. 101 or Geog. 103. Houghton.

334, 634 BIOGEOGRAPHY (3+0) 3 credits S
Brief treatment of plant and animal evolution. Prehisotric, 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. Kersten.

335, 635 CONSERVATION OF NATURAL RESOURCES (3+0) 3 credits F,S
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 geopgraphy, or geology or a biological science. (Same as R.N.R. 335.) Wheeler.

338, 638 FUNDAMENTALS AND TEACHING OF CONSERVATION (2+0) 2 credits SU
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. Wheeler.

341, 641 GEOMORPHOLOGY (2+3) 3 credits F
(See Geol. 341 for description.)

355, 655 POLITICAL GEOGRAPHY (3+0) 3 credits F
Areas, resources, cultural make-up, and boundaries of political units. Geographic aspects of world tension situations and tension zones. Prerequisite: introductory geography course.

370, HISTORY OF MAPPING (2+0) 2 credits S
Great advances in map-making concepts and techniques from the ancient Greeks to the present, and their social, political, and economic effects. Lutsey.

388, 688 CULTURAL AND LINGUISTIC PATTERNS IN THE NEAR EAST (3+0) 3 credits S
(See Anth. 388 for description.) Jacobsen.

415-416
715-716 INTERNSHIP IN GEOGRAPHY
1 to 5 credits each F-S SU
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, 718 GEOGRAPHIC THOUGHT (2+0) 2 credits S
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.

423, 723 HYDROMETEOROLOGY (3+0) 3 credits F
The hydrological cycle; orographic, frontal, and convective precipitation patterns; precipitation variability; statistical relationships between precipitation and stream flow. Prerequisite: general physics and calculus. Hoffer.

430, 730 URBAN GEOGRAPHY (3+0) 3 credits F
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. Kersten.

431-432
731-732 SEMINAR ON ENVIRONMENTAL ISSUES
(3+0) 3 credits F-S
(See R.N.R. 490 for description.)

434, 734 ADMINISTRATION AND POLICY (3+0) 3 credits S
(See R.N.R. 494 for description.)

440, 740 ECONOMICS OF COMMUNITY RESOURCE DEVELOPMENT (3+0) 3 credits
(See A.R.Ec. 460 for description.)

461, 761 WESTERN UNITED STATES: RESOURCES AND INDUSTRIES (3+0) 3 credits F
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. Kersten. (Same as Ag. 461.)

462, 762 WORLD MINERAL ECONOMICS (3+0) 3 credits F
(See Min.E. 472 for description.)

473, 773 NEVADA AND ADJACENT AREAS (3+0) 3 credits S
Physical and human geography of the Great Basin, Sierra Nevada, Columbia Plateau, and Colorado Plateau regions in Nevada, California, Utah, and Idaho. Field trip. Prerequisite: introductory geography course. Kersten.

478, 778 AFRICA (3+0) 3 credits F
Physical, historical, and political geography of a changing Africa. Prerequisite: introductory geography course. Houghton.

482, 782 EUROPE (3+0) 3 credits F
Consideration of the physical, cultural, and historical geography of Europe and its regions. Prerequisite: introductory geography course. Kramer.

485, 785 SOVIET UNION (3+0) 3 credits F
Regional analysis of areas, resources, peoples, and economic development of the Soviet Union. Prerequisite: introductory geography course.

486, 786 ASIA (3+0) 3 credits S
Study of monsoon physical landscapes, peoples and their cultures, with emphasis upon eastern and southern Asia. Prerequisite: introductory geography course. Kramer.

487, 787 MIDDLE EAST (3+0) 3 credits S
Regional geography of area with limits in terms of Arab and Islamic influences or related cultural and historical circumstances. Oriented around strategic centrality of core of territory as crossroads of three continents. Prerequisite: introductory geography course. Kramer.

488, 788 THE PACIFIC BASIN (3+0) 3 credits S
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. Kersten.

489, 789 CHINA (3+0) 3 credits S
Mainland China and Taiwan. Physical patterns, historical and political development, and contemporary regions of China. Prerequisite: introductory geography course. Kersten.

491-492
791-792 SPECIAL PROBLEMS 1 to 3 credits each F-S SU
Independent study of selected geographic problems, including library research, field work, and reports. May be taken more than once to pursue different studies.

901-902 ADVANCED GEOGRAPHY 1 to 5 credits each F-S SU
(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.

920 SEMINAR IN ADVANCED CLIMATOLOGY
(3+0) 3 credits S
Topics in physical, regional, or applied climatology, world climates, microclimates, climatic change, statistical techniques, and problems pertaining to man. Prerequisite: Geog. 322, P.S.W. 331. Houghton.

925 ADVANCED BIOCLIMATOLOGY (3+0) 3 credits F,S
(See P.S.W. 931 for description.)

936 PERSPECTIVES IN RENEWABLE NATURAL RESOURCES
(3+0) 3 credits S
(See R.N.R. 936 for description.)

952-953 THEMES IN CULTURAL GEOGRAPHY
(3+0) 3 credits F-S
Uses the topical approach in the study of the roles played by such factors as population, race, social traits, economy, and politics in shaping the diverse cultural regions of the earth. Kersten, Kramer.

Inactive Courses

471, 771 ANGLO-AMERICA (3+0) 3 credits F
476, 776 LATIN AMERICA (3+0) 3 credits F
919 GEOGRAPHIC ANALYSIS FOR TEACHERS IN THE EARTH SCIENCES AND SOCIAL STUDIES (3+0) 3 credits SU

Geology (Geol.)

101 PHYSICAL GEOLOGY (3+3) 4 credits F,S
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.

101A PHYSICAL GEOLOGY (3+0) 3 credits F,S SU
Lectures on geologic concepts and processes with emphasis on relationships to mankind. Occasional optional all day Saturday or Sunday trips to areas illustrating lectures. Staff.

102 HISTORICAL GEOLOGY (3+3) 4 credits F,S
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 or 101A.

105 INTRODUCTION TO GEOLOGY (1+0) 1 credit F,S
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. Slemmons.

160 GENERAL PALEONTOLOGY (3+0) 3 credits F,S
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. Firby.

201 GEOLOGY OF NEVADA (2+0) 2 credits F,S
Lectures and exercises on Nevada's geology, including areal geology, geologic history, and economic geology. Occasional Saturday field trips. Prerequisite: Geol. 101 or 102.

211 MINERALOGY (2+3) 3 credits F
Elementary crystallography. Study of economically important minerals with emphasis on simple determinative tests: includes occurrences, associations, origins, crystal chemistry, and structure. Prerequisite: knowledge of elementary chemistry and trigonometry. Hibbard.

212 MINERALOGY AND LITHOLOGY (2+3) 3 credits S
Study of rock-forming minerals, including determinative tests, occurrences, associations, origins, crystal chemistry and structural crystallography. Origin identification and classification of igneous, metamorphic, and sedimentary rocks. Prerequisite: Geol. 211. Hibbard.

332 STRUCTURAL GEOLOGY (2+6) 4 credits F
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. Larson.

341, 641 GEOMORPHOLOGY (2+3) 3 credits F
Study of 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.) Hibbard or Payne. Not applicable toward an advanced degree in geology.

390 ELEMENTARY GEOPHYSICS AND GEODYNAMICS (3+0) 3 credits S
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. 181. Ryall.

404, 704 INTRODUCTION TO REMOTE SENSING (3+0) 3 credits S
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. (Same as R.N.R. 404.) Lintz.

415, 715 GEOLOGICAL THERMODYNAMICS (3+0) 3 credits F
Laws of thermodynamics, reaction kinetics and irreversible processes in solution, applications to geologic and geochemical processes. Prerequisite: senior or graduate standing. Sharp.

417, 717 INSTRUMENTAL METHODS IN DETERMINATIVE MINERALOGY (2+3) 3 credits F
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. Hsu.

425, 725 OPTICAL MINERALOGY (2+6) 4 credits F
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. Slemmons.

427, 727 IGNEOUS AND METAMORPHIC PETROLOGY (2+0) 2 credits S
Theory of origin, composition, and classification of igneous and metamorphic rocks. Prerequisite: Geol. 425. Slemmons

428, 728 IGNEOUS AND METAMORPHIC PETROGRAPHY (0+6) 2 credits S
Laboratory study of igneous and metamorphic rocks. Prerequisite: Geol. 425. Slemmons.

446, 746 PHOTOGEOLOGY-PHOTOGRAMMETRY (1+6) 3 credits F
Lectures on photogrammetric principles. Laboratory applications of photogrammetry to geologic problems and photogeologic interpretation. Nongeologic majors given laboratory exercises in their field of interest. Larson.

450 FIELD METHODS (0+3) 1 credit S
Introduction to methods and instruments used by field geologist; including elementary photogrammetry. Larson.

451, 751 SUMMER FIELD GEOLOGY 3 or 6 credits SU
Study and prepare 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 and $137.50 or $275.00 assessed to cover cost of board and transportation.

461, 761 INVERTEBRATE PALEONTOLOGY (3+3) 4 credits F
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 Zool. 340. Lintz.

462, 762 MICROPALEONTOLOGY (2+6) 4 credits S
Study of microfossils, chiefly Foraminiferida and Ostracoda. Consideration of other groups including spores and pollen and nannofossils. Firby.

464-465
764-765 STRATIGRAPHIC PALEONTOLOGY (2+3) 3 credits each F-S
Succession of invertebrate faunas from the Cambrian to the Pleistocene with emphasis on index fossils, faunal distributions, and paleoecologic systems. Spring term covers Paleozoic (Lintz); fall term covers Mesozoic and Cenozoic (Firby). Prerequisite: Geol. 461.

469, 769 STRATIGRAPHY AND SEDIMENTATION (2+3) 3 credits S
Principles of stratigraphy and sedimentation as illustrated by selected examples from the geologic record. Prerequisite: Geol. 102, 211-212. Larson.

471, 771 ORE DEPOSITS (2+3) 3 credits S
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. Payne.

479, 779 EARTHQUAKE ENGINEERING (3+0) 3 credits F
Historic earthquakes, faulting and seismicity; spectra of earthquake vibrations; effects on soil and damage to man-made 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.) Ryall, Slemmons, Bonell, Douglas.

480, 780 ENVIRONMENTAL GEOLOGY (2+3) 3 credits S
The 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. Slemmons.

482, 782 PETROLEUM GEOLOGY (3+0) 3 credits S
Origin, migration, and accumulation of petroleum. Petroleum exploration. Petroliferous provinces of the world with emphasis on North America. Prerequisite: Geol. 102. Lintz.

483, 783 ENGINEERING GEOLOGY 1 to 4 credits S
Application of geological factors to design and construction of engineering works and evaluation of geological hazards in urban development. Slemmons.

484, 784 GROUND WATER (3+0) 3 credits S
Occurrence, movement, resources, chemical properties, and utilization of underground water. Prerequisite: Phys. 152 or 204, Math 140 and Geol. 332. Maxey.

487, 787 MINING GEOLOGY (2+3) 3 credits F
Application of geology in mining operations: emphasis on mapping, laboratory, and office procedures in maintenance of ore reserves and control. One weekend spent mapping geology of a mine. Saturday field trips. Prerequisite: Geol. 471. Baker.

488, 788 EXPLORATION GEOLOGY (3+0) 3 credits S
Geologic and geochemical methods, mapping techniques, physical exploration for mineral deposits. Planning, budgeting, exploration logistics. Mineral titles. The integrated exploration program. Several Saturday field trips. Prerequisite: Geol. 471. Payne.

492, 792 GEOPHYSICAL EXPLORATION (2+3) 3 credits F
Applied geophysical methods. Gravity, magnetics, electrical, and seismic. Field work with geophysical equipment. Discussion of case histories. Prerequisite: Geol. 332 (may be taken concurrently), Math. 182, Phys. 152, 209. Erwin.

493, 793 ELEMENTARY SEISMOLOGY (2+3) 3 credits F
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. 281. Ryall.

494, 794 GEOPHYSICS AND POTENTIAL THEORY (2+3) 3 credits S
Introduction to interpretation theory and techniques of applied gravity, magnetic, and electrical methods. Prerequisite: Geol. 492 and Phys. 352 and 473 (may be taken concurrently). Offered in alternate years. Erwin.

495-496
795-796 SPECIAL PROBLEMS 1 to 5 credits each F-S SU
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. Staff.

497-498
797-798 SPECIAL TOPICS IN GEOLOGICAL SCIENCES 1 to 6 credits each F-S SU
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.

901-902 ADVANCED GEOLOGY 1 to 5 credits each F-S SU
(a) General geology, (b) Regional geology, (c) Mineralogy, (d) Petrology, (e) Petrography, (f) Geochemistry, (g) Structural geology, (h) Geophysics, (j) Geomorphology, (k) Paleontology, (m) Sedimentation, (n) Stratigraphy, (p) Mineral deposits, (r) Economic geology, (s) Ground water, (t) Engineering geology, (u) Photogrammetry, (v) Seismology, (w) Instrumental analysis, (x) Teaching of earth sciences, (y) Mineral exploration, (z) Earth science. Courses consist of either lectures, periodic conferences, supervised reading, laboratory or field work. May be elected more than once to pursue different studies.

910 HISTORY OF GEOLOGY (2+0) 2 credits S
Evolution of man's thought concerning earth and development of geology as a science. Lintz.

915 GEOCHEMISTRY (3+0) 3 credits S
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. 924.) Hsu.

916 LOW TEMPERATURE AQUEOUS GEOCHEMISTRY (3+0) 3 credits S
Oxidation of ore deposits, chemical weathering of geologic materials, origin and fate of chemical constituents of environmental waters, deposition of chemical sediments, isotope geochemistry. Prerequisite: Geol. 415 or equivalent. Sharp.

918 CHEMISTRY OF ENVIRONMENTAL WATERS (3+0) 3 credits S
Major and minor chemical constituents and chemical and physical parameters of environmental waters; sampling/analysis techniques, isotope hydrology, analysis of water-quality data. Some field and laboratory work. Given alternate years. Sharp.

924 PHASE PETROLOGY (3+0) 3 credits S
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, 715. (Alternates with Geol. 915.) Hsu.

926 VOLCANIC PETROLOGY (2+6) 4 credits F
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. 928.) Slemmons.

927 PETROLOGY OF PLUTONIC ROCKS (2+3) 3 credits S
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. 928.) Hibbard.

928 METAMORPHIC PETROLOGY (2+3) 3 credits S
Theoretical and petrographic study of metamorphic mineral assemblages including problems of equilibrium-disequilibrium, process lending to the development of fabric, and elementary petrofabrics. Prerequisite: Geol. 425 and Geol. 427-428 or equivalent. (Alternates with Geol. 927.) Hibbard.

930 ADVANCED GEOLOGY OF NEVADA (2+0) 2 credits F
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. Larson.

931 STRUCTURAL GEOLOGY SEMINAR (2+3) 3 credits F
Study of structural features of the earth's crust; their distribution and the mechanics of their formation. Prerequisite: Geol. 332. Larson or Payne.

971 METALLOGENY (3+0) 3 credits F
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. Payne.

973 MINERAL EXPLORATION SEMINAR (1+0) 1 credit F
Seminar on a current topic in geology, geophysics, or geochemistry in exploration for hard minerals in the Cordillera. Payne.

983 HYDROGEOLOGY I (2+3) 3 credits F
Relationships between the geologic framework and water. Geology of occurrence, movement, and storage of water. Prerequisite: Geol. 484 or equivalent. Maxey.

984 HYDROGEOLOGY II (2+3) 3 credits S
Seminar. Review of case histories of typical hydrogeologic problems. Prerequisite: Geol. 983 or equivalent. Maxey.

991-992 MINERAL INDUSTRY SEMINAR 1 to 3 credits each F-S
(See Min.E. 991-992 for description.)

994 THEORY OF WAVES IN AN ELASTIC MEDIUM (3+0) 3 credits S
Theory of stress and strain, equilibrium and wave motion in elastic solids, with special attention to earthquake waves. Prerequisite: Geol. 493, Math. 221. Ryall, Boucher.

995 ADVANCED SEISMOMETRY (2+3) 3 credits F
General mathematical theory of the seismograph with discussion of problems in modern seismometry. Laboratory assembly and calibration of seismographic systems. Prerequisite: Phys. 208, Math. 221. Ryall.

997 THESIS 1 to 6 credits F,S SU

999 DISSERTATION 1 to 24 credits F,S SU

Inactive Course

203 ROCKS AND MINERALS (2+3) 3 credits F
476, 776 NONMETALLIC MINERAL DEPOSITS (3+0) 3 credits S
486, 786 FIELD GEOPHYSICS (0+3) 1 credit S

Health Sciences (H.Scs.)

101 INTRODUCTION TO THE HEALTH SCIENCES (3+0) 3 credits F,S
Theoretical, descriptive, and experiential identification of the many different health service occupations.

104 INTERPERSONAL SKILLS (2+3) 3 credits F,S
How to establish, develop, conclude, and understand helping relations on a one-to-one basis with emphasis on communication skills in professional health care. Approved for, but not limited to, majors in health sciences.

205 HEALTH SEMINAR (2+0) 2 credits F,S SU
Study and discussion of major issues related to personal and community health. Approved for, but not limited to, those majoring in health sciences.

282 HEALTH CARE: ASSESSMENT (2+3) 3 credits F
Concepts and methods employed by health care teams in the health assessment of individuals, families, and communities.

283 HEALTH CARE: INTERVENTION (2+3) 3 credits S
Identification and use of selected basic clinical techniques which serve as a common knowledge base for interdisciplinary health team members.

380 COMMUNITY HEALTH III (2+3) 3 credits F,S
Interdisciplinary approach to study of community health problems. Basics of ecology as related to health factors in the community. Emphasis on health team approach to problem identification and problem solving.

381 COMMUNITY HEALTH IV (2+3) 3 credits F,S
Interdisciplinary approach to community health. Emphasis on identification of local and state health issues with initial experience in analysis and problem solving as related to local issues. Prerequisite: H.Scs. 380.

391 INDEPENDENT STUDY 1 to 3 credits F,S SU
Identification of problems in field of health sciences. Pursuit of actual research problems with approval and guidance by faculty committee. May be repreated to a maximum of 6 credits.

436, 736 APPLIED BEHAVIOR ANALYSIS (3+0) 3 credits F,S
(See Psy. 436 for description.)

480 COMMUNITY HEALTH V (2+3) 3 credits F,S SU
Interdisciplinary approach to community health. Involves family case histories, case findings, and case assignments. Approved for, but not limited to, those majoring in health sciences. Prerequisite: H.Scs. 381.

481 COMMUNITY HEALTH VI (2+3) 3 credits F,S SU
Interdisciplinary approach to community health. Analysis of world health problems and health care delivery systems. Seminars and field work on health team interventions and approaches. Approved for, but not limited to, those majoring in health sciences.

491 INDEPENDENT STUDY 1 to 3 credits F,S SU
Identification of problems in field of health sciences. Pursuant of actual research problem with approval and guidance by faculty committee. May be repeated to a maximum of 6 credits.

499 SEMINAR FOR HEALTH SCIENCES (3+0) 3 credits F,S SU
Intensive study and discussion of major health problems. May be repeated to a maximum of 6 credits.

Inactive Course

395 CLINICAL KINESIOLOGY (3+0) 3 credits F,S

History (Hist.)

101 UNITED STATES (3+0) 3 credits
Survey of U.S. 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
Survey of U.S. political, social, economic, diplomatic, and cultural development from 1865 to the present. Includes examination of the Nevada Constitution and satisfies the Nevada Constitution requirements.

105 EUROPEAN CIVILIZATION (3+0) 3 credits
Survey of the development of western civilization from the dawn of history to 1648.

106 EUROPEAN CIVILIZATION (3+0) 3 credits
Survey of the development of western civilization from 1648 to the present.

111 SURVEY OF AMERICAN CONSTITUTIONAL HISTORY (3+0) 3 credits
Study of the 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. Not open to students who have obtained credit for Hist. 101 or 217.

201-202 TROPICAL AFRICA (3+0) 3 credits each
Survey history of the peoples and cultures of tropical Africa.

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.

300 INTRODUCTION TO HISTORIOGRAPHY (3+0) 3 credits
Study of the philosophy of history, the history of history, and the techniques of historical research.

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. Prerequisite: 6 credits of history.

314 WESTERN NORTH AMERICA (3+0) 3 credits
Development of western North America as a region, emphasizing the area north of Meso-America. Contributions of the native American tribes, the Polynesians in Hawaii, the various European, African, and Asiatic groups considered. Prerequisite: 6 credits of history.

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. Prerequisite: Hist. 101 or 102.

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. Prerequisite: Hist. 101-102.

320 THE SPANISH-SPEAKING PEOPLE OF THE WESTERN UNITED STATES (3+0) 3 credits
A survey of the historical development of Hispano, Chicano, and Mexican peoples in the Southwest and the Pacific Coast, emphasizing the period since 1848. Prerequisite: Hist. 101-102 or equivalent.

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. Prerequisite: 6 credits of history.

343-344 LATIN AMERICA (3+0) 3 credits each
Survey of the 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. Prerequisite: 6 credits of history.

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. Prerequisite: 6 credits of history.

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 sicne 1850 are stressed. Prerequisite: 6 credits of history.

351-352 THE FAR EAST (3+0) 3 credits each
Survey of the 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. Prerequisite: 6 credits of history.

353 RECENT HISTORY OF THE FAR EAST (2+0) 2 credits
The Far East in the aftermath of World War II. Prerequisite: 6 credits of history.

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. Prerequisite: Hist. 105 and 106.

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. Prerequisite: 6 credits of history including 105.

373 MEDIEVAL CIVILIZATION (3+0) 3 credits
Europe from the disintegration of the Roman Empire to the age of the Renaissance. Prerequisite: 6 credits of history including 105.

374 RENAISSANCE AND REFORMATION (3+0) 3 credits
Art, literature, politics, philosophy, science and religion in Europe from 1300 to the death of Michelangelo. Political and religious crisis. Lutheranism, Zwinglianism, Calvinism, Anglicanism, Anabaptism, Catholic reform, and religious civil war. Prerequisite: 6 credits of history including 105.

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. Prerequisite: Hist. 105-106.

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. Prerequisite: 6 credits of history.

401-402
701-702 AMERICAN CONSTITUTIONAL HISTORY (3+0) 3 credits each
A narrative and interpretive study of the origin and growth of the constitutional system. May be used to satisfy requirement in United States Constitution. Prerequisite: 6 credits of history including 101 or equivalent (fall semester), or 102 or equivalent (spring semester).

403-404
703-704 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. Prerequisite: 6 credits of history including 101 or equivalent (fall semester), or 102 or equivalent (spring semester).

406, 706 HISTORY OF AMERICAN IMMIGRATION (2 or 3+0) 2 or 3 credits
A historical inquiry into the conditions which produced and the problems which resulted from the great Atlantic migration. Prerequisite: Hist. 101 and 102 or equivalent.

407-408
707-708 AMERICAN DIPLOMATIC HISTORY (3+0) 3 credits each
Origins, character and consequences of American foreign policies from the Revolutionary War to the present. Prerequisite: 6 credits of history including 101 or equivalent (fall semester), or 102 or equivalent (spring semester).

409, 709 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. Prerequisite: 6 credits of American history including any one of the following courses: Hist. 101, 102, 111, 312, 314.

410, 710 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. Prerequisite: 6 credits of American history including any one of the following courses: Hist. 102, 312, 314, 416.

411, 711 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, 712 UNITED STATES: BIRTH OF THE REPUBLIC, 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. Prerequisite: 6 credits of history including 101 or equivalent.

413, 713 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. Prerequisite: 6 credits of history including 101 or equivalent.

414, 714 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. Prerequisite: 6 credits of history including 101 or equivalent.

415, 715 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. Prerequisite: 6 credits of history including 102 or equivalent.

416, 716 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. Prerequisite: 6 credits of history including 102 or equivalent.

417, 717 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. Prerequisite: 6 credits of history including 217 or 314.

421-422
721-722 HISTORY OF RUSSIA (3+0) 3 credits each
The development of Russian history and society from the Varangians to the present. Prerequisite: 6 credits of history including 105 or equivalent (fall semester), or 106 or equivalent (spring semester).

423-424
723-724 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. Prerequisite: 6 credits of history including 106 or equivalent.

425, 725 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. Prerequisite: 6 credits of history including 106 or equivalent.

427, 727 INTELLECTUAL HISTORY OF MODERN EUROPE (3+0) 3 credits
Examination of selected ideas and thinkers who have influenced European civilization since the Renaissance. Prerequisite: Hist. 105 and 106 or equivalent.

428, 728 BASQUE HISTORY (3+0) 3 credits
A political, social, and economic history of the Basque provinces and their unique ethnic status within Spain and France. Prerequisite: 6 credits of history.

455-456
755-756 BLACK EXPERIENCE IN AMERICA (3+0) 3 credits each
A historical treatment of the Black experience in America, emphasizing the seventeenth-twentieth centuries. Second semester begins at Reconstruction. Prerequisite: Hist. 101 and 102.

461, 761 EARLY MODERN EUROPE, 1600-1763 (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 Enlightment. Prerequisite: Hist. 105 and 106 or equivalent.

462, 762 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. Prerequisite: 6 credits of history including 106 or equivalent.

463, 763 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. Prerequisite: 6 credits of history including 106 or equivalent.

464, 764 EUROPE: 1914 TO THE PRESENT (3+0) 3 credits
Detailed study of an age of conflict and its interludes of peace. Prerequisite: 6 credits of history including 106 or equivalent.

473, 773 PATTERNS OF MEDIEVAL CULTURE (3+0) 3 credits
Selected topics concerning economic, social, and cultural developments in the Middle Ages. Investigation into topics concerning feudal society, religious orthodoxy and dissent, universities, chivalry, etc. Prerequisite: 6 credits of history including 105.

475, 775 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. May be repeated to a maximum of 6 credits.

497-498
797-798 INDEPENDENT STUDY 1 to 3 credits each

Graduate Courses

903 ADVANCED STUDIES IN HISTORY 1 to 3 credits
May be repeated to a maximum of 6 credits.

905 GRADUATE READINGS IN HISTORY 1 to 3 credits
May be repeated to a maximum of 9 credits.

910 SEMINAR IN MEDIEVAL HISTORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

911 SEMINAR IN AMERICAN HISTORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

912 SEMINAR IN MODERN EUROPEAN HISTORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

913 SEMINAR IN LATIN AMERICAN HISTORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

914 SEMINAR IN NEVADA AND FAR WESTERN HISTORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

915 SEMINAR IN AMERICAN IMMIGRATION (3+0) 3 credits
May be repeated to a maximum of 9 credits.

916 SEMINAR IN FAR EASTERN HISTORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

937 COLLEGE TEACHING IN HISTORY (3+0) 3 credits
Theory and practice in the teaching of history in college. May be repeated to a maximum of 6 credits.

983 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.

984 PROBLEMS IN HISTORIOGRAPHY (3+0) 3 credits
Prerequisite: Hist. 983 or equivalent.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Inactive Course

431, 731 ENGLISH CONSTITUTIONAL HISTORY (3+0) 3 credits
453 ETHNIC HISTORY IN THE UNITED STATES (3+0) 3 credits

Home Economics (H.Ec.)

Associate Degree Courses[1]

10, 110 DISPLAY (1+6) 3 credits F
Interior and exterior window arrangements; the application of art principles to the display of fashion merchandise.

18 WORK EXPERIENCE IN FASHION (1+9) 4 credits F,S
Students must have appeared before the screening committee and be accepted for supervised work experience.

32-33-34 PRACTICUM WITH CHILDREN AND THEIR FAMILIES (1+6) 3 credits each F-S
Preschool teaching. Methods, curriculum development, evaluation, and apprentice teaching. Includes theory, supervised laboratory experience, conferences, and working with parents and community services. Satisfactory performance necessary for continuation in the course.

36, 136 STUDY OF THE INDIVIDUAL CHILD (1+2) 2 credits
Observation and study of one child as a basis for developing insight into human behavior.

37 THE CHILD AND HIS FOOD (1+2) 2 credits
Principles of nutrition applied to feeding young children. Laboratory experiences in the nursery school concerned with feeding children in homes and groups.

Baccalaureate and Advanced Degree Courses

116 ELEMENTARY TEXTILES (2+2) 3 credits
Basic raw materials, yarns, fabric construction and finishes; their selection, use, and care as they relate to fashion retailing.

121 HUMAN NUTRITION (3+0) 3 credits F,S
Introduction to the principles of nutrition and their application to well-balanced diets.

122 CREATIVE FOODS (1+2) 2 credits F,S
Introduction to basic food principles including meal preparation.

131 CHILD DEVELOPMENT: PRENATAL TO SIX (3+0 or 3) 3 or 4 credits F,S
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 (2+0) 2 credits
A study of child development principles used in working with young children. Prerequisite or corequisite: H.Ec. 131.

140 FAMILY MANAGEMENT PROBLEMS (2+0) 2 credits F
The family as the basic consuming unit in today's society. Decision-making and the management process as related to consumer behavior of individuals and families.

171 PERSPECTIVES IN HOME ECONOMICS (2+4) 4 credits F
Overview of cultural family patterns, acquaintance with professionals serving families, attitudes and skills of a home economist, and disciplines contributing to home economics.

172 FOOD AND MAN (4+0) 4 credits S
Introduction to basic food principles and nutrition; influences of economic, cultural, aesthetic and socio-psychological aspects of food habits on dietary patterns and nutrition of individuals. Prerequisite or corequisite: 3 credits of psychology or sociology and chemistry.

174 FOOD AND MAN LABORATORY (0+3) 1 credit S
Optional course to accompany H.Ec. 172. Required of home economics majors in foods and nutrition, extension, and education.

[1]Two-digit numbered courses apply to associate degree programs only.

200 SPECIAL TOPICS IN HOME ECONOMICS 1 to 3 credits F,S
Study under supervision by a staff member on topics of special interest to the learner. Prerequisite: approval of instructor. May be repeated to a maximum of 6 credits.

201 FAMILY AND COMMUNITY HEALTH (2+0) 2 credits
Personal, family and community health problems; community and governmental health agencies; principles of first aid and home care of the sick with special reference to the care of children and the aged. Not open to nursing or health education majors.

210 CLOTHING CONSTRUCTION (1+6) 3 credits
Understanding of an 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.

216 FASHION AS A CAREER (1+2 or 4) 2 or 3 credits
Experiential preparation for fashion careers including job interview, resumé preparation, fashion show production, and acquaintance with selected careers through seminars and field trips.

223 ADVANCED NUTRITION I (3+0) 3 credits
Nutrient functions and bases for nutrient requirement at the cellular level. Prerequisite: organic chemistry and H.Ec. 121 or 172, or 12 credits of life science.

231 CHILD DEVELOPMENT: SIX THROUGH ADOLESCENCE (3+0 or 3) 3 or 4 credits S
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 (2+0) 2 credits
Planning preschool programs; giving consideration to the special needs of day care and nursery school situations. It is recommended that this course be taken concurrently with 2 credits of H.Ec. 233. Prerequisite: H.Ec. 132.

233 PRACTICUM WITH CHILDREN AND FAMILIES (1+4 to 13) 2 to 5 credits
Practicum in work with young children and families. Requires demonstration of specific predetermined levels of competencies. Satisfactory performance necessary for continuation in the course. Prerequisite or corequisite: H.Ec. 131, Ed. 220 or Psy. 233. May be repeated to a maximum of 12 credits.

237 UNDERSTANDING CHILDREN'S PLAY (2+0) 2 credits
Survey of the development, values and guidance of creative activities for young children.

251 DELINEATION IN HOUSING (0+4) 2 credits F
A studio course to develop ability in communication housing ideas and information through representational delineation; perspective and rendering techniques; preparation of a professional presentation.

271 CLOTHING (4+2) 5 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 or corequisite: Background in design work, and 3 credits of psychology or sociology.

273 SHELTER AND ENVIRONMENT (4+0) 4 credits F
Development of sensitivity to total shelter and environment, both aesthetic and functional, as a framework for family living. Prerequisite: 3 credits of psychology or sociology.

274 THE INDIVIDUAL AND THE FAMILY (3+0 or 4+2) 3 or 5 credits
Human growth and development and the needs of individuals and families at all stages in the life cycle. Prerequisite or corequisite: 3 credits of psychology and 3 credits of sociology. The 5-credit version is the course required of majors in the School of Home Economics.

276 SEMINAR IN FAMILY HEALTH (1+0) 1 credit F
Physical and mental health of families as influenced by physical and cultural environment. Prerequisite or corequisite: H.Ec. 172, 271, 273 and 274. *S/U only.*

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.

313 CLOTHING AND THE CONSUMER (2+0) 2 credits
Consumer economics applied to clothing expenditures; includes merchandising facts, consumer needs, preferences, and satisfactions, use-care. Prerequisite: H.Ec. 271 or 3 credits in economics and 3 credits in psychology.

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 ADVANCED TEXTILES (2+2) 3 credits
Physical and chemical properties of textile fibers in determination of end use. Experience in use of testing instruments; new developments in the textile field. Prerequisite: H.Ec. 271 and organic chemistry.

321 QUANTITY FOODS (2+3 or 3+6) 3 or 5 credits
Experience in management of quantity food production and service; use, preparation, and maintenance of equipment.

322 MEAL MANAGEMENT (1+5) 3 credits F
Application of the principles of management, foods, and nutrition to the process of meal preparation. Prerequisite: H.Ec. 174.

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. Prerequisite: major or minor in ethnic studies (15 credits in social sciences) or H.Ec. 172.

333 PRACTICUM IN PARENT EFFECTIVENESS (2+0) 2 credits
Designed for people interested in improving their understanding and skill in relating with their children.

347 TEACHING HOME ECONOMICS (3+0) 3 credits F
General review of the homemaking curriculum as it relates to learning experiences, methods and materials.

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 planning, selecting, and arranging furnishings and accessories in the home. Prerequisite: Background in design work.

371 FAMILY ECONOMICS AND MANAGEMENT (3+2) 4 credits F
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, sociology.

373 SEMINAR IN CONSUMER COMPETENCE (1+0) 1 credit F
Integrates economics and management as they relate to family decision-making in food, clothing, shelter, and interpersonal relationships. Prerequisite: H.Ec. 172, 271, 273, 274 and 371. *S/U only.*

374 COMMUNICATIONS IN HOME ECONOMICS (2+3) 3 credits
The 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: minimum of 2 credits in speech and junior standing in home economics.

376 SEMINAR IN FAMILY FUNCTIONING (1+3) 2 credits
Integrates previous learning from home economics and other related courses through a problem solving situation working with a family in its home environment. Satisfactory performance necessary for continuation in the course. Prerequisite: 20 credits of core courses in home economics including H.Ec. 274. *S/U only.*

400, 700 SPECIAL PROBLEMS 1 to 10 credits per semester F,S SU
Individual study of 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, (j) Home management, (k) Housing, (m) Household equipment, (n) Nutrition or (p) Textiles. May be repeated to a maximum of 10 credits.

406, 706 DEMONSTRATION TECHNIQUES (1+2) 2 credits
Experience in planning and presenting demonstrations in home economics subjects. Prerequisite: H.Ec. 374.

410, 710 EXPERIMENTAL CLOTHING (2+2) 3 credits
Experimental investigation and application of construction methods and techniques to problem textiles. Prerequisite: H.Ec. 210.

412, 712 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.

421, 721 READINGS IN FOODS AND NUTRITION (2+0) 2 credits
Intensive investigation of current research in foods and nutrition through critical evaluation of recent studies. Prerequisite: 15 credits of physical or behavioral science.

422, 722 NUTRITION IN THE LIFE CYCLE (1+0) 1 to 5 credits
Relationship between nutrient needs, development and feeding practices throughout life. Prerequisite: introductory nutrition course. (1 credit in each of the following areas: pregnancy and lactation; infancy; childhood; adolescence; middle and later life.) May be repeated to a maximum of 5 credits.

423, 723 EXPERIMENTAL FOODS (2+3) 3 credits
Experimental investigation of the chemical and physical reactions involved in food preparation. Prerequisite: Chem. 172 and H.Ec. 172.

424, 724 ADVANCED NUTRITION II (2+0 or 6) 2 or 4 credits
Investigation of research methods for evaluation of human nutrition status. Prerequisite: H.Ec. 223 or 15 credits of life science.

426, 726 DIET THERAPY (2+3) 3 credits
Modifications of the normal diet for the prevention and treatment of diseases. Prerequisite: H.Ec. 223 and B.Ch. 301 or 15 credits of life science.

430 HUMAN SEXUALITY (3+0) 3 credits F,S
An exploration of masculine and feminine roles as they relate to human development, personal functioning, interpersonal relations, and family living in a complex changing society.

431, 731 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.

433, 733 GUIDANCE PRINCIPLES IN LATER CHILDHOOD (1+3) 2 credits
Supervised participation with older children in nonschool situtations. Prerequisite: 6 credits of work in child development.

434, 734 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 E.S.Ed. 270.

435, 735 READINGS IN CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS (2+0) 2 credits
For advanced students with discussions of current research and readings in this field. Prerequisite: 6 credits in child development—family life.

436, 736 FAMILY INTERACTION (1+2) 2 credits
Laboratory experience designed to utilize family theory and research in understanding the dynamics of family interaction and its impact on family members.

437 ADMINISTRATION OF DAY CARE AND NURSERY SCHOOL PROGRAMS (3+0) 3 credits
Administration, staffing, financing, housing and equiping of day care centers and nursery schools.

439, 739 PRESCHOOL PROGRAMS (3+0) 3 credits
Study of preschool programs including basic philosophies (traditional, Montessori, eclectic, etc.), curricula and procedures. Prerequisite: H.Ec. 131 or equivalent.

449 ORGANIZATION AND ADMINISTRATION OF HOME ECONOMICS (2+0) 2 credits S
Planning the physical aspects to implement the home economics program. Evaluation as a technique for grading, learning, and appraising progress. (Same as S.Ed. 449.)

451, 751 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. May be repeated to a maximum of 6 credits with approval of department. (a) Promotion practices, (b) Organization, (c) Instructional observation, (d) Programmed instruction, (e) Curriculum, (f) Administration. (Same as S.Ed. 451.)

452, 752 DECISION-MAKING IN THE FAMILY ECOSYSTEM (3+0) 3 credits
The interrelationship and interdependence of concepts from management, family dynamics, and the near environment affecting family decision-making; family viewed as an ecosystem. Prerequisite: H.Ec. 371 or 12 credits in social sciences.

453, 753 ECONOMIC ASPECTS OF THE HOUSING ENVIRONMENT (3+0) 3 credits
The 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. 202 or its equivalent.

454, 754 INTERIOR DESIGN-MATERIALS AND TECHNIQUES (1+4) 3 credits
Study of interior design problems involving form and scale; evaluation of design quality of furniture. Architectural design and background treatments of rooms. Prerequisite: H.Ec. 355 or 273.

455, 755 WORKSHOP IN VOCATIONAL EDUCATION (1+0 per credit) 1 to 6 credits
(See S.Ed. 455 for description.)

456, 756 INTERIOR DESIGN STUDIO (0+4) 2 credits
Integrated class problem in the complete development of a room. Practice in furniture arrangement, selection and designs for remodeling. Prerequisite: H.Ec. 355 or 273 and 454.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0+2½ per credit) 1 to 8 credits S
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, 758 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 (2+18) 3 to 8 credits F,S SU
(Course may be taken one semester for 3 credits and another semester for 5 credits, or once for the total 8 credits.) Work with one or more community agencies that facilitate the transmission of home economics subject matter directly to individuals and families. Combines a two-hour seminar with supervised field experience. Prerequisite: approval of screening committee.

475 PHILOSOPHIES AND ISSUES IN HOME ECONOMICS (2+0) 2 credits S
Seminar encompassing objective and critical thought, creativity, choice of life styles, current philosophies and issues, and professional responsibilities. Prerequisite: senior standing in home economics.

494, 794 SEMINAR ON LIFE STYLES AND THE ENVIRONMENT (2+0) 2 credits
A systematic analysis and reconsideration of alternative individual life styles in the framework of society's impact on the environment. Prerequisite: senior or graduate standing.

900 GRADUATE STUDIES IN HOME ECONOMICS 1 to 3 credits in a field per semester F,S SU
Advanced study of problems and research in one or more of the following fields: (a) Child development, (b) Clothing, (c) Family economics, (d) Family relations, (e) Foods, (f) General home economics, (g) Home economics education, (h) Home furnishings, (j) Home management, (k) Housing, (m) Household equipment, (n) Nutrition or (p) Textiles.

918 RESEARCH SEMINAR IN TEXTILES AND CLOTHING (3+0) 3 credits
Critcial discussion of research literature; new developments and trends, particularly those of importance to consumers. Prerequisite: 10 credits of work in clothing and textiles.

919 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.

924 FOOD SCIENCE (3+0) 3 credits
Current research related to colloidal chemistry of foods and food constituents during processing, storage, and preparation. Prerequisite: H.Ec. 423 or equivalent; Biol. 301 or Chem. 271.

930 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.

933 CHILDREN AND FAMILIES (1+4) 3 credits
Study of families and children through discussion, observation, and interaction. Participation in home, school and community agencies will be arranged to acquaint students with a range of individuals and family patterns and backgrounds. Prerequisite: 6 credits in human development.

955 DIRECTED TEACHING IN COLLEGE HOME ECONOMICS 3 credits F,S
Teaching a college-level home economics course. Team planning, individual preparation, presentation of material, and testing undergraduate students in lectures, discussions, and laboratories. Prerequisite: Undergraduate major in home economics or equivalent. *S/U only.*

958 INDIVIDUAL INSTRUCTION IN HOME ECONOMICS EDUCATION (1+0 per credit) 1 to 3 credits
Selected basic problem related to the field of home economics education. (a) Teaching problems, (b) curriculum, (c) Supervision, (d) Programmed instruction, (e) Junior high school, (f) Senior high school, (g) Area problems, (h) Research. May be repeated to a maximum of 4 credits.

980 INTERSTATE DOCTORAL STUDY (variable credit) F,S SU
Extended registration for students participating in an interinstitutional doctoral program. May be repeated for credit.

990 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.

991 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.

992 PROFESSIONAL PAPER 1 to 3 credits F,S SU
Required of all graduate students who wish to complete a Master of Science degree in the School of Home Economics under Plan B.

994 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.

997 THESIS 1 to 6 credits F,S SU

Inactive Courses

11 CLOTHING SELECTION (4+0) 4 credits F
12 THE FASHION INDUSTRY (1+6) 3 credits S
17 SPECIAL PROBLEMS 1 to 3 credits F,S SU
35 PRACTICUM WITH CHILDREN AND THEIR FAMILIES (1+8) 4 credits S
38 INFANCY AND EARLY CHILDHOOD (3+0) 3 credits S
39 CHILD AND FAMILY HEALTH CARE (2+0) 2 credits F
213 TAILORING TECHNIQUES (1+6) 3 credits
340 HOUSEHOLD EQUIPMENT (1+2) 2 credits
443, 743 WORK SIMPLIFICATION (1+2) 2 credits
917 TEXTILE FURNISHINGS (3+0) 3 credits
920 HISTORY AND AESTHETICS OF TEXTILES (3+0) 3 credits

Honors Study Board (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. May be repeated up to a maximum of 12 credits.

410 AREA STUDY 3 credits
A view of a particular region of the world from the perspective of several academic disciplines. May be repeated to a 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. May be repeated to a 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. May be repeated to a 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. May be repeated to a 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. May be repeated to a maximum of 9 credits.

476 THE FUTURE (3+0) 3 credits
Investigation into future relations between man, his social structure, and his environment. May be repeated to a maximum of 9 credits.

498 DYNAMICS OF NATIONAL DEVELOPMENT (3+0) 3 credits
The problems and processes involved in national efforts to achieve various developmental goals. Means and values are emphasized. May be repeated to a maximum of 6 credits.

Inactive Courses

432 RACE AND ETHNIC RELATIONS (3+0) 3 credits
443 SCIENCE AND CULTURE (3+0) 3 credits
487 REVOLUTION: SOURCES AND MANIFESTATIONS (3+0) 3 credits

Humanities (Hum.)

240 AMERICA AND THE FUTURE OF MAN 3 credits F,S
Consists of twenty 1400-word printed lectures written by some of the nation's distinguished scholars and two seminar sessions conducted by University faculty. Printed lectures will include such topics as the impact of change on society and on value systems, biological and ethical implications of advances in medicine and genetics, and the future of technology and its effects on the qualify of life. (Offered through GUE Independent Study Division only.)

Inactive Course

210 GENERAL HUMANITIES (3+0) 3 credits

Industrial Mechanics (I.M.)

Associate Degree Courses[1]

24, 124 HYDRAULIC SYSTEMS (2+3) 3 credits S
Principles and practices of the operation and maintenance of hydraulic systems employed in agricultural equipment. (Offered in odd numbered years)

61 FARM MACHINERY (1+3) 2 credits S
Familiarization with care, maintenance, and use of farm machinery. (Offered in even numbered years.)

63 ADVANCED WELDING TECHNIQUES (1+3) 2 credits S
Advanced techniques in welding and the design of welded structures. Prerequisite: I.M. 30. (Offered in odd numbered years.)

64 MACHINE DESIGN AND CONSTRUCTION (1+3) 2 credits S
Design and construction of farm machines utilizing readily available materials. (Offered in odd numbered years)

71 DIESEL ENGINES (1+3) 2 credits S
Servicing, repairing and overhauling diesel engines. (Offered in odd numbered years)

73 GAS ENGINES (2+3) 3 credits F
Servicing, repairing, and overhauling gasoline engines.

[1]Two-digit numbered courses apply to associate degree programs only.

74, 274 AUTOMATIC TRANSMISSIONS (2+3) 3 credits S
Servicing, repairing, and overhauling automatic transmissions. Prerequisite: I.M. 24. (Offered in even numbered years)

76 ELECTRIC MOTORS AND PUMPS (2+3) 3 credits F
Servicing, repairing, and overhauling electric motors and pumping units. (Offered in odd numbered years.)

81, 281 MACHINE TOOL OPERATION (2+3) 3 credits F
Use of metal working tools and machines as applied to agricultural and other heavy equipment. Prerequisite: I.M. 121. (Offered in even numbered years.)

Baccalaureate and Advanced Degree Courses

General

100 BASIC MECHANICS (3+0) 3 credits F,S
The 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.

111 FUNDAMENTALS OF NONMETALLIC FABRICATION (2+3) 3 credits S
The use and application of wood, 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 F
Familiarization with care, operation and maintenance of mechanical and electrical equipment used in rural and urban agricultural activities. (Offered in even numbered years).

121 FUNDAMENTALS OF METAL WORK (2+3) 3 credits F
Care and use of metal-working hand and power tools. Special projects in bench work, sheet metal, and plumbing.

122 ENGINES AND POWER TRAINS (2+3) 3 credits S
Introduction to power units and transmission mechanisms. (Offered in odd numbered years.)

142 IRRIGATION EQUIPMENT AND STRUCTURES (2+3) 3 credits S
Design, layout, and construction of irrigation systems and structures encompassing modern irrigation methods. (Offered in even numbered years.)

180 SHOP MANAGEMENT (3+0) 3 credits S
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 F
A study and practice of AC and DC welding, acetylene welding, cutting, and brazing. Identification of metals and special welding rods.

216, 316, 416 INTERNSHIP IN AGRICULTURAL AND INDUSTRIAL MECHANICS (1 to 3+0) 1 to 3 credits F,S SU
Participation in 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. *S/U only.*

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.

253 GAS ENGINES AND TRACTORS (2+3) 3 credits F
Principles and operation, care and repair of farm gas engines and tractors with emphasis on efficiency of operation and use of special testing equipment.

256 RURAL ELECTRIFICATION (2+3) 3 credits S
Planning and wiring the farmstead, electric motors, electrical equipment, and applicances. Materials, code regulation, electrical measurements, and rates applicable to various farm uses.

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
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: I.M. 111.

321 ADVANCED METAL WORK (2+3) 3 credits S
Designed to provide advanced training in the use of specialized techniques and equipment used in metal fabrication. Prerequisite: I.M. 121 and 212. (Offered in even numbered years)

332 FARM MACHINERY (2+3) 3 credits S
Basic principles of machines; adjustment, maintenance, and repair of farm machinery for efficient field operation. (Offered in even numbered years.)

333 MACHINE DESIGN AND CONSTRUCTION (2+3) 3 credits S
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: I.M. 212. (Offered in odd numbered years.)

341 FARM STRUCTURES (2+3) 3 credits F
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 S
Specialized training in the area of gasoline engine tune-up and diagnosis of engine malfunctions. Intensive work with service and repair of individual gasoline engine systems is included in the course. Prerequisite: I.M. 253. (Offered in odd numbered years.)

357 DIESEL POWER (2+3) 3 credits S
Overhauling and repairing diesel farm tractors and engines; field servicing and repairing auxiliary power plants. Prerequisite: I.M. 253. (Offered in odd numbered years.)

412 ADVANCED WELDING (2+3) 3 credits S
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 weldiment materials used with specialized metals and alloys. Prerequisite: I.M. 212. (Offered in odd numbered years.)

417 PUMPS AND MOTORS (2+3) 3 credits F
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 F,S SU
Intensive study of a special problem in (a) agricultural education, and (b) industrial mechanics.

485, 785 SPECIAL TOPICS IN AGRICULTURAL AND INDUSTRIAL MECHANICS (1 to 3+0) 1 to 3 credits F,S SU
Presentation and review of recent research, innovations, and developments in agricultural and industrial mechanics. Areas may include new machines and equipment, as well as new innovations or improvements of present equipment to improve its production or ecological efficiency. May be repeated to a maximum of 6 credits.

950 WORKSHOP IN AGRICULTURAL AND INDUSTRIAL MECHANICS (1+0 per credit) 1 to 6 credits F,S SU
An intensive study of a technical phase of (a) Agricultural education, (b) Industrial mechanics. May be repeated to a maximum of 6 credits.

980 INDIVIDUAL STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in (a) Agricultural education, and (b) Industrial mechanics. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits.

Education

144 INTRODUCTION TO AGRICULTURAL AND INDUSTRIAL EDUCATION (2+0) 2 credits F,S
Operation, history, and philosophy of the vocational agricultural and industrial mechanics program.

444 METHODS AND MATERIALS OF TEACHING AGRICULTURAL AND INDUSTRIAL MECHANICS (2+0) 2 credits F,S
Organization and administration of industrial and farm mechanics program, including objectives, course content, lesson planning, and teaching methods.

46, 746 PROGRAM DEVELOPMENT IN AGRICULTURAL AND INDUSTRIAL EDUCATION (2+0) 2 credits F,S
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 F,S
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, 755 WORKSHOP IN VOCATIONAL EDUCATION (1+0 per credit) 1 to 6 credits SU
In-service training in vocational education programs; agriculture, home economics, trades and industries, business and distributive education, counseling, and guidance. Sponsored by the State and the University. May be repeated to a maximum of 6 credits.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0+2½ per credit) 1 to 8 credits F,S
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.

Inactive Course

400 SEMINAR (1+0) 1 credit F,S

Information Systems (I.S.)

150 BASIC (1+0) 1 credit
Introductory programming in BASIC, a nontechnical language. Use of time-sharing terminal with problems in the various areas of business. (Credit not allowed for both I.S. 150 and 250.)

250 INTRODUCTION TO BUSINESS COMPUTER PROGRAMMING (3+0) 3 credits
Introductory programming in BASIC. Use of time-sharing terminals. Flow charts. Survey of systems. Functions of computer components.

251 COBOL (3+0) 3 credits
Programming in COBOL (Common Business Oriented Language).

252 FORTRAN IV (3+0) 3 credits
Programming in FORTRAN with emphasis on business.

350 COMPUTER OPERATING SYSTEMS (3+0) 3 credits
Numbering systems. Internal storage. Introductory assembler and machine language commands. Operating systems. Prerequisite: I.S. 250.

352 COMPUTER APPLICATIONS (3+0) 3 credits
Documentation. Advanced programming techniques. Functions of tapes and discs. Prerequisite: I.S. 251.

451, 751 ADVANCED COMPUTER PROBLEMS (3+0) 3 credits
Managerial problems and computer installation and operations. Feasibility studies. Prerequisite: I.S. 251.

480, 780 ACCOUNTING SYSTEMS AND AUTOMATION (3+0) 3 credits
Accounting systems with emphasis on planning for managerial decision making. Problems of internal control and audit as related to electronic data processing. Prerequisite: I.S. 251.

490, 790 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. May be repeated to a maximum of 6 credits.

916 BUSINESS DECISION-MAKING AND ANALYSIS (3+0) 3 credits
Advanced problems in data analysis and business decision-making, including computerized application. (Satisfies requirement for MBA first-year core.)

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. Open to all students. Course may be started with Jour. 101 or 102.

221-222 NEWS GATHERING AND WRITING (1+5) 3 credits each
What makes news, how news is obtained, and how news is written are studied and applied in reporting news for newspapers and other media. Discussions and laboratory. Prerequisite: Jour. 101.

231-232 361-362
491-492 791-792 ADVANCED INTERPRETATION OF THE DAY'S NEWS (1 or 2+0) 1 or 2 credits each
Study and interpretation on an advanced level of the news of the day. Prerequisite: Jour. 101.

253 THE EVOLUTION OF JOURNALISM AS A SOCIAL INSTITUTION (3+0) 3 credits
Development of journalism in America in relation to political, economic, and social movements. Evolution of printing, advertising, newspapers, magazines, radio and television journalism, publicity, and public relations. Open to juniors and seniors in any college.

280 INTRODUCTION TO NEWS BROADCASTING (2+0) 2 credits
Radio and television as news media in the U.S. and abroad, including history, relationships to press and governments, and varieties and effectiveness as news media.

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. Open to juniors and seniors in any college.

302, 602 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. Open to juniors and seniors in any college.

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. 221 and 280.

320 PUBLICITY METHODS (2+0) 2 credits
For officers and publicity chairmen present and prospective, of civic, social, religious, professional, recreational, and fraternal orgranizations in the handling of news of their groups for newspapers and radio stations. Open to juniors and seniors in any college. 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, makeup, and similar duties of the copy editor. Prerequisite: Jour. 221.

356 PRINCIPLES OF ADVERTISING (2+0) 2 credits
Elements which go into successful advertising, including basic principles, types, planning, media, copy, production, and social responsibility. Open to juniors and seniors in all colleges.

357 LABORATORY OF ADVERTISING (1+5) 3 credits
One hour lecture and five hours laboratory weekly, chiefly in-class writing, laying out and discussion of advertisements and campaigns for various media. Prerequisite: Jour. 356, 373 and upperclass standing.

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, 672 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. Prerequisite: junior standing.

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. 221 or 356.

375 PHOTOJOURNALISM (1+3) 2 credits
Principles of reporting news through photography and the application of them in practice work for various publications. Prerequisite: Jour. 221.

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. May be repeated to a maximum of 4 credits. Prerequisite: Jour. 221-222 or upperclass standing.

410, 710 ON-THE-SCENE REPORTING FOR RADIO AND TELEVISION (1+2) 2 credits
Principles and practice of reporting directly from the scene of news events; special techniques for interviews and other types of news covered outside the radio-television newsroom. Prerequisite: Jour. 221 and 311 or 312.

421, 721 THE AMERICAN MAGAZINE (3+0) 3 credits
Designed to introduce students to the reading, enjoyment, and understanding of various types of primarily journalistic magazines. Open to juniors and seniors in any college.

454, 754 ADVANCED REPORTING (3+0) 3 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. 221 and 222 or 311.

465-466
765-766 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. 221 and 351.

467, 767 EDITORIAL WRITING (3+0) 3 credits
Interpretation of contemporary events through the newspaper and magazine editorial, coupled with extensive practice in writing. Prerequisite: Jour. 221.

468, 768 THE SPECIAL FEATURE ARTICLE (2+0) 2 credits
Study, writing and marketing of the special feature article for magazines and newspapers. Prerequisite: Jour. 221 and upperclass standing. May be repeated to a maximum of 4 credits.

479, 779 JOURNALISM AND SOCIETY (3+0) 3 credits
Sociological aspects of journalism, including public opinion, newspaper leadership, responsibility, ethics, censorship, propaganda, the world's press, and contemporary problems. Prerequisite: Jour. 221 and upperclass standing.

480, 780 PUBLICATION PRODUCTION AND MANAGEMENT (1+2) 2 credits
Principles, problems of journalism involved in the management of publications including editorial, circulation, production. Practical experience as staff members of University Times.

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: open only to senior students in journalism.

485, 785 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. 221.

490, 790 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. 221.

493-494 495-496
793-794 795-796 INDEPENDENT STUDY 1 credit each
Aspects of journalism not covered by other courses. Open only to juniors and seniors in journalism who have attained an average grade of B.

901-902
903-904 INDEPENDENT STUDY FOR GRADUATE STUDENTS 1 or 2 credits each
Advanced study and investigation into problems in journalism.

951-952
953-954 GRADUATE SEMINAR IN JOURNALISM 1 or 2 credits each

997 THESIS 1 to 6 credits F,S

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.

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.

Managerial Sciences (Mgr.S.)

Associate Degree Courses[1]

11 MERCHANDISING (3+0) 3 credits S
Retail merchandising strategy, including display layout, space allocation, pricing policies, and special customer services.

63 ADVERTISING AND PROMOTION (3+0) 3 credits F
Methods of successful advertising and promotion of agricultural materials. Use of newspapers, radio, television, broadcasting, and special promotion materials.

64 SALESMANSHIP (3+0) 3 credits S
Presents a combination of successful selling principles and techniques necessary in all phases of business, including background information needed by salesmen and specialized training in the selling of goods and services.

67 SUPERVISION (3+0) 3 credits F,S
Principles of personnel management applied to the duties of the employee supervisor. Contemporary leadership techniques usable by the supervisor in motivating employees to improve efficiency and in resolving grievances and disciplinary problems. Discussion and role playing used to analyze typical problems.

71 FUNDAMENTALS OF MANAGEMENT (3+0) 3 credits F
Fundamentals of administrative, staff and operative management. Management principles applied to all types of organizations: objectives, policies, functions, executive leadership, organizational structure, morale, operation, and control procedures.

72 INTRODUCTION TO BUSINESS FINANCE (3+0) 3 credits S
Use of capital and credit in the financing of new and continuing businesses. Principles and practices in handling credit accounts.

Baccalaureate and Advanced Degree Courses

270 PRINCIPLES OF REAL ESTATE (3+0) 3 credits F
Economic, legal, financial, marketing, managerial, and operational aspects of real estate.

301 INSTITUTIONAL MANAGEMENT I (3+0) 3 credits F
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 S
A continuation of Mgr.S. 301. Prerequisite: Mgr.S. 301.

310 MARKETING PRINCIPLES (3+0) 3 credits F,S
Objectives and policies of marketing managers as influenced by marketing institutions, the functions performed and consumer wants and needs. Prerequisite: Ec. 201 and junior standing.

312 CONSUMER BEHAVIOR (3+0) 3 credits S
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 MARKETING CHANNELS (3+0) 3 credits S
Analysis of channel alternatives in retail and industrial sectors of distribution. Prerequiite: Mgr.S. 310.

323 ORGANIZATION AND INTERPERSONAL BEHAVIOR (3+0) 3 credits F,S
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.

351 TRANSPORTATION (3+0) 3 credits S
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 F,S SU
Design of production and inventory systems. Application of basic quantitative methods to decision processes, particularly as related to the production function. Prerequisite: Math. 160 or 181, Acc. 201 and 202, Ec. 261 and 262.

353 RISK AND INSURANCE (3+0) 3 credits F
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. 202.

361 RETAILING (3+0) 3 credits S
Operation of retail stores; problems of location, layout, organization, buying, pricing, service policies; management of selling and general financial and management problems. Prerequisite: Mgr.S. 310.

362 PRODUCTION MANAGEMENT (3+0) 3 credits F,S SU
Management of production function through advanced readings in quantitative methods and analysis of cases. Such areas as production and inventory control models, line balancing, improvement phenomenon, and facilities planning. Prerequisite: Mgr.S. 352.

365 CORPORATION FINANCE (3+0) 3 credits F,S
Problems of financing business enterprises including topics of financial instruments, capitalization, management of working capital and dividend policy, expansion, and business reorganization. Prerequisite: Acc. 201 and Ec. 201.

367, 667 PERSONNEL ADMINISTRATION (3+0) 3 credits F,S SU
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 S
Analysis of investment risks, media and investment portfolios with relation to requirements and policies of individuals and also of various institutions. Prerequisite: Mgr.S. 365.

[1]Not applicable to baccalaureate and advanced degree programs.

*Offered alternately, usually in the Summer Session. Contact Director of Libraries for information.

375, 675 LAND RESOURCES: VALUE AND ALLOCATION (3+0) 3 credits F
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 science.

378 REAL ESTATE LAW (3+0) 3 credits S
Law of real property; transfers, deeds, leases, title insurance, escrows, land contracts, foreclosures, recordings. Law as it affects brokers and salesmen. Prerequisite: B.A. 373.

401, 701 LIFE INSURANCE (3+0) 3 credits S
Analysis and treatment of personal risks, use of life, health and annuity contracts in realm of estate planning, acturial concepts, purchase decisions, regulatory problems. Prerequisite: Mgr.S. 353.

402, 702 PROPERTY LIABILITY INSURANCE (3+0) 3 credits S
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, 703 RISK MANAGEMENT SEMINAR (3+0) 3 credits S
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, 704 PROBLEMS IN BUSINESS FINANCE (3+0) 3 credits S
Analysis and application of financial concepts to organization and operation of business enterprises. Prerequisite: Mgr.S. 365.

415, 715 COMMERCIAL BANK MANAGEMENT (3+0) 3 credits F
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, 720 INTERNATIONAL FINANCE (3+0) 3 credits S
Role of commercial and central banks in international finance, methods of financing international trade and investment, balance of payments, foreign exchange, exchange rates, international financial institutions. Prerequisite: Ec. 303.

421, 721 SALES MANAGEMENT (3+0) 3 credits F
Management of product planning and development, merchandising, strategy, distribution policy, pricing, sales programs, promotion, organization, sales forces, and operations. Prerequisite: Mgr.S. 310.

422, 722 ADVERTISING MANAGEMENT (3+0) 3 credits S
Advertising's role in the firm's overall promotional strategies, selection of media, determining strategies and expenditures and judging effectiveness. Managerial aspects are emphasized. Prerequisite: Mgr.S. 310 or Jour. 356 and junior standing.

427, 727 PROBLEMS IN LABOR RELATION AND PERSONNEL ADMINISTRATION (3+0) 3 credits S
Function of personnel administration and role of the personnel administrator in the individual firm. Assumptions, objectives, and methodologies of the personnel function in several major problem and program areas with emphasis on quantitative analysis in these areas. Prerequisite: Mgr.S. 367.

430, 730 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, 731 REAL ESTATE APPRAISAL PROBLEMS (3+0) 3 credits S
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, 752 COMPARATIVE MANAGEMENT (3+0) 3 credits F
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, 753 THE HUMAN ELEMENT IN INDUSTRY (3+0) 3 credits F,S
Theories of group formation and behavior; analysis of supervisory behavior and leadership, managerial characteristics, group cohesiveness, conformity, productivity standards, problem solving, and morale. Prerequisite: Mgr.S. 323.

455, 755 BUSINESS LOGISTICS (3+0) 3 credits F
Systems used in the management of the supply of goods, optimum location of storage and transfer sites, materials handling, and selection of transportation media. Prerequisite: Mgr.S. 310 and junior standing.

460, 760 MANAGEMENT: THEORY AND PRACTICE (3+0) 3 credits F,S SU
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, 761 ADVANCED OPERATIONS MANAGEMENT (3+0) 3 credits F,S
Theory and application of sophisticated quantitative decision models to all business systems. Proceeds beyond the fundamentals of such techniques as linear programming, Markovian processes, queuing theory, simulation, etc. Prerequisite: Mgr.S. 352 and 362.

462, 762 BUSINESS AND SOCIETY (3+0) 3 credits S
Social responsibilities of the business executive; business ethics; business-government relations; business in literature; role of the business enterprise as a subsystem of the larger societal system; the businessman's responsibilities to those who provide capital, the work force, his customers, his suppliers, the government, and others. Prerequisite: junior standing.

470, 770 INTERNATIONAL MARKETING (3+0) 3 credits F
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, 771 MARKETING RESEARCH (3+0) 3 credits F
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.

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, 789 MARKETING MANAGEMENT (3+0) 3 credits S
The 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 F,S
Study and research in business administration. Prerequisite: approval of instructor. May be repeated to a maximum of 6 credits.

915 BUSINESS FINANCE (3+0) 3 credits F
Financing business enterprise; financial instruments, capitalization, management of working capital, dividend policy, reorganization. (Satisfies requirement for MBA first-year core.)

916 ADVANCED MANAGEMENT (3+0) 3 credits S
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 requirement for MBA first-year core.)

917 MARKETING ANALYSIS AND STRATEGIES (3+0) 3 credits S
Objectives and policies of marketing managers as influenced by marketing institutions, functions performed, and consumer wants and needs. (Satisfies requirement for MBA first-year core.)

932 FINANCIAL MANAGEMENT (3+0) 3 credits S
Analysis and discussion of actual case problems in the area of corporation 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: graduate standing, Mgr.S. 365 or 915.

933 SEMINAR IN FINANCE (3+0) 3 credits
Advanced study of selected topics in finance. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits.

941 SEMINAR IN RESEARCH METHODOLOGY (3+0) 3 credits F
Analysis of topics in the philosophy of scientific investigation, causality and predictability, theory of models, and measurement. Problems in designing, conducting, and reporting research.

942 ADVANCED MARKETING (3+0) 3 credits F
Problem-solving and decision-making from the viewpoint of the marketing executive. Prerequisite: graduate standing, Mgr.S. 310 or 917.

943 MARKETING SEMINAR (3+0) 3 credits S
Contemporary trends and theory in marketing developed through reports and discussion.

952 SEMINAR IN GENERAL MANAGEMENT (3+0) 3 credits F
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. 916.

953 SEMINAR IN PRODUCTION MANAGEMENT (3+0) 3 credits S
Analysis of the problems encountered by production executives at the level of factory manager. The main objective is to develop an ability to recognize, analyze, and solve problems in production management; also, to formulate production policies. Prerequisite: Mgr.S. 352.

958 BUSINESS POLICY (3+0) 3 credits F,S
An 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 MBA.

990 INDEPENDENT STUDY 1 to 3 credits F,S
Advanced study and research in business administration. May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits F,S SU

Inactive Courses

345 INDUSTRIAL PURCHASING (3+0) 3 credits F
387 WAGE AND SALARY ADMINISTRATION (3+0) 3 credits F
477, 777 SEMINAR IN INSTITUTIONAL MANAGEMENT (3+0) 3 credits S

Mathematics (Math.)

Each student is required to present to the Mathematics Department an ACT STANDARD MATHEMATICS SCORE, a MATHEMATICS PLACEMENT 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
A 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
A 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. 135, 160, 283 or as a terminal course. Prerequisite: satisfactory score on qualifying examination or Math. 101.

140 ANALYTIC GEOMETRY (3+0) 3 credits
Coordinatization 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: satisfactory score on qualifying examination and Math. 102 or equivalent.

Introductory Mathematics for the Engineering, Physical, and Mathematical Sciences

163 INTRODUCTION TO PROBABILITY (2+0) 2 credits
Algebra of sets, probability in finite sample spaces, counting techniques, random variables, binomial distribution. Prerequisite: Math. 110 or satisfactory score on qualifying examination.

181 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. 181.*

182 CALCULUS II (4+0) 4 credits
A continuation of Math. 181; transcendental functions, methods of integration, conics, vectors. Prerequisite: Math 181.*

220 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.

221 DIFFERENTIAL EQUATIONS (2+0) 2 credits
Scalar-valued differential equations; linear theory, differential operators, inhomogeneous constant coefficient linear initial-value problems, Green's functions, Wronskians; non-linear first order initial-value problems. Prerequisite: Math. 281 or both Math. 182 and coregistration in Math. 281.

*A student whose current progress is unsatisfactory in the opinion of the instructor may be required to attend supervised study sessions.

262 MATRIX AND VECTOR ALGEBRA (2+0) 2 credits
The 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. 182.

281 CALCULUS III (4+0) 4 credits
A continuation of Math. 182; infinite series, three-dimensional calculus. Prerequisite: Math. 182.

311, 611 MULTIVARIABLE CALCULUS (3+0) 3 credits
Mappings between Euclidean spaces, their differentials and partial derivatives; the chain rule; extremalization computations; line and surface integrals; the theorems of Gauss, Green and Stokes. Prerequisite: Math. 262 and 281.

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, 601 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, 607 SYMBOLIC LOGIC (3+0) 3 credits
(See Phil. 326 for description.)

308, 608 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 281, for those majoring in the physical sciences. (Same as Phil. 308.)

374, 674 THE NUMBER SYSTEMS (3+0) 3 credits
(For description see the listing under Mathematical Education.)

401, 701 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

312, 612 COMPLEX ANALYSIS (3+0) 3 credits
Complex numbers, analytic and harmonic functions, Cauchy-Riemann equations, complex integration, the Cauchy integral formula, elementary conformal mappings, Laurent series, calculus of residues. Prerequisite: Math. 311.

411, 711 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 either 262 or 332.

412, 712 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 either 262 or 332.

419, 719 TOPICS IN ANALYSIS (3+0) 3 credits
Variable content chosen from such topics as: differential forms, analytic functions, distribution theory, measure and integration, constructive analysis.

Applied Analysis

321, 621 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. 281 and Math. 221.

322, 622 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.

421, 721 OPTIMAL ANALYSIS (3+0) 3 credits
The analysis of extrema of real-valued functions and functionals, with applications. Introduction to calculus of variations and optimal control. Prerequisite: Math. 311 and 321.

429, 729 TOPICS IN APPLIED ANALYSIS (3+0) 3 credits
Variable content chosen from such topics as: integral transforms, approximation of functions, nonlinear mathematics, stability theory.

Algebra

331, 631 GROUPS, RINGS AND FIELDS (3+0) 3 credits
A study of the elementary structure of groups, rings, and fields, including homomorphisms, automorphisms, normal subgroups, ideals, and Galois theory. Prerequisite: Math. 281.

332, 632 LINEAR ALGEBRA (3+0) 3 credits
The vector space structure; linear mappings and their matrix representation; rank, determinants, eigenvalues and eigenvectors, diagonalization; scalar products and orthogonality. Prerequisite: Math. 262.

439, 739 TOPICS IN ALGEBRA (3+0) 3 credits
Variable content chosen from such topics as: Galois theory, number theory, topological groups, combinatorial analysis, theory of graphs.

Geometry and Topology

341, 641 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. 281.

375, 675 FOUNDATIONS OF GEOMETRY (3+0) 3 credits
(For description see listing under Mathematical Education.)

441, 741 TOPOLOGY (3+0) 3 credits
The concepts of continuity, compactness, local compactness, and connectedness in a general topological setting; separation and countability conditions; product and quotient topoligies; homotopy, the fundamental group and coverning spaces. Prerequisite: Math. 341.

442, 742 DIFFERENTIAL GEOMETRY (3+0) 3 credits
The geometry of curves and surfaces in space; Frenet's formulas; Cartan's frame fields, Gaussian curvature; intrinsic geometry of surfaces; congruence of surfaces; the Gauss-Bonnet theorem. Prerequisite: Math. 311.

449, 749 TOPICS IN GEOMETRY AND TOPOLOGY (3+0) 3 credits
Variable content chosen from such topics as: projective geometry, algebraic topology, convexity, topological vector spaces.

Probability and Statistics

351, 651 STATISTICS (3+0) 3 credits
Estimation: choice of estimator, confidence intervals, stratified sampling. Hypothesis testing: power, comparative experiments, chi-square, Student's t distribution and non-parametric methods. Linear regression. Prerequisite: Math. 220 or 163.

353, 653 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. 281 and 220.

354, 654 APPLIED PROBABILITY THEORY (3+0) 3 credits
Introduction to stochastic processes, including random walks and Markov chains with applications. Prerequisite: Math. 353.

453, 753 MATHEMATICAL STATISTICS (3+0) 3 credits
Univariant and multivariant normal distributions, point and interval estimation, tests of hypotheses including multivariant and nonparametric techniques. Prerequisite: Math. 353.

Mathematics for the Biological, Management, and Social Sciences

160 CALCULUS AND MATRICES (3+0) 3 credits
Fundamental ideas of analytic geometry, calculus and linear algebra. Plane coordinates, graphs, functions, limits, derivatives, integrals, the fundamental theorem of calculus, matrix operations. Applications to rates, extremalization, interpretation of integrals, solution of linear equations. Prerequisite: two years of high school mathematics or equivalent and satisfactory score on qualifying examination or Math. 110.

210 MATHEMATICS OF FINANCE (3+0) 3 credits
A mathematical study of interest, annuities, sinking funds, depreciation, amortization, and other topics related to business problems. Prerequisite: Math. 101 or 1½ units of high school algebra.

220 PROBABILITY AND STATISTICS (3+0) 3 credits
(For description see listing under Introductory Mathematics for the Engineering, Physical, and Mathematical Sciences.)

469, 769 MATHEMATICAL TOPICS IN THE BIOLOGICAL, MANAGEMENT AND SOCIAL SCIENCES (3+0) 3 credits
Variable content chosen from such topics as: linear and integer programming, nonlinear programming, game theory, and optimization problems.

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
A continuation of Math. 173. Prerequisite: Math. 173.

371, 671 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, 672 CONCEPTS OF SCHOOL MATHEMATICS II (3+0) 3 credits
A continuation of Math. 371. Emphasis on geometry, mensuration and coordinate systems. Prerequisite: Math 371.

373, 673 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. Prerequisite: Math. 181.

374, 674 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. 181.

375, 675 FOUNDATIONS OF GEOMETRY (3+0) 3 credits
Elements of Euclidean, non-Euclidean, affine and projective geometries and their interrelations. Prerequisite: Math. 181.

Computing Science

185 INFORMATION AND COMPUTER SCIENCE (2+2) 3 credits
Number representations; data analysis; introductory technology and design; plus selected topics in the information sciences, cybernetics, automation, and artificial intelligence. (Includes practice with university time-sharing system.) Prerequisite: Math. 140 or 160.

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. 110, 140 or satisfactory score on qualifying examination.

383, 683 NUMERICAL METHODS (3+0) 3 credits
Analysis of numerical methods of linear algebra and nonlinear equations. Prerequisite: Math. 281, 262 and 283.

385, 685 COMPUTER PROGRAMMING AND ORGANIZATION (3+0) 3 credits
Computer structure, machine language, representation of data. Microprogramming and interpreters. Assembly systems, macrodefinition, programming techniques. Basic concepts of data structures, symbol tables, searching and sorting techniques. Prerequisite: Math. 185.

386, 686 PROGRAMMING LANGUAGES (3+0) 3 credits
Syntax and semantics of programming languages. Algorithmic simultation, list processing and string manipulation languages. Run-time representation of program and data structures. Formal specification of data structures. Prerequisite: Math. 385.

489, 789 TOPICS IN COMPUTING SCIENCE (3+0) 3 credits
Variable content chosen from such topics as: numerical methods of integration and of differential and integral equations, optimization, computability, applied formal systems.

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, 700 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

900 SEMINAR 1 to 3 credits
Library work and reports on topics of mathematical interest. Limited to 6 credits except under special circumstances.

913-914 ABSTRACT AND REAL ANALYSIS (3+0) 3 credits each
Metric spaces, abstract measures, measurable functions, integration, product measures, Fubini Theorem, topoligical measures, Haar measure, differentiation, Radon-Nikodym Theorem, linear spaces, Hahn-Banach Theorem, Riesz Representation. Prerequisite: Math. 901.

915-916 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.

931-932 MODERN ALGEBRA (3+0) 3 credits each
Groups, fields, linear dependence, linear transformations, Galois theory.

941-942 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.

997 THESIS 1 to 6 credits

998 TOPICS IN ADVANCED MATHEMATICS (3+0) 3 credits each
A graduate level course in probability, topology, statistics or other fields of mathematics at advanced level depending upon current interest of staff and students. May be repeated to a maximum of 9 credits.

Inactive Courses

10 GENERAL MATHEMATICS (2+0 or 3) 2 or 3 credits F SU
26 DESCRIPTIVE GEOMETRY (1+6) 3 credits F,S

Mathematics—Technical (M.T.)

111 TECHNICAL MATHEMATICS I (5+0) 5 credits F,S
Review of basic algebra, advanced algebra and a complete course in trigonometry.

121 TECHNICAL MATHEMATICS II (3+0) 3 credits F,S
Elements of analytic geometry and calculus with applications to technical problems.

Mechanical Engineering (M.E.)

140 ENGINEERING ANALYSIS I (2+2) 3 credits F
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 S
Continuation of M.E. 140.

150 GRAPHICS (1+6) 3 credits F
The science and techniques of graphical representations, communications, and solution of spatial and mathematical problems. Corequisite: Math. 140.

241 ANALYTIC MECHANICS FOR ENGINEERS (3+0) 3 credits F,S
A 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: Math. 182, Phys. 208.

242 KINEMATICS OF MACHINERY (2+3) 3 credits S
A 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 F
A continuation of M.E. 141.

291 INSTRUMENTATION (2+2) 3 credits S
Theory and practice of instrumentation and experimentation. Prerequisite: M.E. 250.

300 INTRODUCTION TO ENGINEERING MATHEMATICS (2+0) 2 credits F,S
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. 281.

342 ANALYTIC MECHANICS FOR ENGINEERS (3+0) 3 credits F,S
A 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 S
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 F,S
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 S
A continuation of M.E. 371 covering availability, nozzles, thermodynamics relations, combustion, and equilibrium. Prerequisite: M.E. 371.

401 COMPUTER PROGRAMMING (1+3) 2 credits S
Basic theory and techniques used in programming mechanical engineering problems for the analog computer and the digital computer. Prerequisite: senior standing.

402, 702 NUMERICAL METHODS IN ENGINEERING (3+0) 3 credits F,S
Numerical methods for curve fitting, differentiating, and integrating are introduced and applied to physical problems. Prerequisite: M.E. 400.

403, 703 PARTIAL DIFFERENTIAL EQUATIONS IN ENGINEERING (3+0) 3 credits F,S
Techniques of solving and application of partial differential equations are investigated. Bessel, Legendre, and Mathieu functions are introduced. Prerequisite: M.E. 400.

410, 710 INTRODUCTION TO SYSTEM CONTROL (3+0) 3 credits S
The mathematics of linear systems and their control. Prerequisite: M.E. 342, 400.

430 MATERIALS (2+0) 2 credits F
Properties of materials as they affect selection and design. Prerequisite: Met.E. 350.

444, 744 SPACE MECHANICS (3+0) 3 credits F,S
Reference frames, Euler Angles, orbital mechanics, mechanics of powered flight, satellite dynamics and lunar trajectories. Prerequisite: M.E. 342.

445, 745 ADVANCED MECHANICS (3+0) 3 credits F,S
Unsymmetrical bending, shear center, strain energy, complementary energy with applications, continuous elastically supported beams, beam columns, buckling of bars, the elastica, electric resistance strain gaging. Prerequisite: C.E. 372.

451, 751 MECHANICAL DESIGN I (2+3) 3 credits F
A study of materials and their properties; design of machine elements; principles and philosophy of good mechanical design. Prerequisite: C.E. 372.

452, 752 MECHANICAL DESIGN II (2+3) 3 credits S
A 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, 753 MECHANICAL VIBRATIONS (3+0) 3 credits S
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. 342, 400.

461, 761 HEAT TRANSFER (3+0 or 3) 3 or 4 credits F
A 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.

462, 762 SPECIAL TOPICS IN HEAT TRANSFER (2+0) 2 credits F,S
Continuation of M.E. 461 including heat exchanger analysis. Prerequisite: M.E. 461.

471, 771 PRINCIPLES OF FLUID MACHINERY (3+0) 3 credits F,S
Development of the principles of momentum transfer and discussion of machines to utilize such transfer. Prerequisite: C.E. 367, M.E. 372.

472, 772 AIR CONDITIONING (2+0) 2 credits S
Study of the principles and methods of environmental control. Prerequisite: M.E. 372.

473, 773 REFRIGERATION (2+0) 2 credits S
Principles of refrigeration, both normal temperature and cryogenic. Prerequisite: M.E. 372.

474, 774 COMBUSTION POWER (2+0) 2 credits S
Production of power by hydrocarbon fuels. Includes reciprocating and turbine power. Prerequisite: M.E. 471.

480, 780 GAS DYNAMICS I (2+0) 2 credits F
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, 781 GAS DYNAMICS II (3+0) 3 credits F,S
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, 782 AERODYNAMICS (3+0) 3 credits F,S
Lift and drag characteristics of bodies and aerodynamic characteristics of the complete airplane. Prerequisite: M.E. 480.

491 SEMINAR (1+0) 1 credit F
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 S
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 F,S
Projects related to courses. Prerequisite: senior standing in mechanical engineering.

494 PROJECTS LABORATORY (0+2) 1 credit S
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 F,S
Study and/or experimentation in areas of special interest to mechanical engineers.

900 MATHEMATICAL METHODS IN ENGINEERING (3+0) 3 credits F,S
Use of advanced mathematical methods in solving engineering problems. (a) General advanced mathematical methods, (b) Operational methods, (c) Numerical methods. Prerequisite: M.E. 400.

940 DYNAMIC ANALYSIS IN ENGINEERING (3+0) 3 credits F,S
(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.

950 ADVANCED MACHINE DESIGN (1+6) 3 credits F,S
(a) Creative design of machines and systems, including advanced analysis and synthesis. (b) Continuation of 950a with emphasis on theory and application of photoelastic strain analysis. Prerequisite: M.E. 452.

960 HEAT TRANSFER (3+0) 3 credits F,S
An 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. 900a. (May be taken concurrently with M.E. 900a.)

970 ADVANCED PROBLEMS IN THERMODYNAMICS (3+0) 3 credits F,S
An 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. 900a.

972 ADVANCED THERMODYNAMIC-FLUID SYSTEM DESIGN (3+0) 3 credits F,S
System design and analysis with emphasis on dynamic behavior. (a) Environmental systems, (b) Powers systems. Prerequisite: M.E. 372.

980 MECHANICS AND THERMODYNAMICS OF FLUID FLOW (3+0) 3 credits F,S
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 M.E. 900a.

990 RESEARCH 1 to 4 credits F,S
Study and experimentation in areas of special interest.

997 THESIS 1 to 6 credits F,S

998 READINGS AND CONFERENCES 1 to 4 credits F,S
Literature search and analytical study of special problems.

999 DISSERATION 1 to 24 credits F,S SU

Inactive Courses

100 PRODUCTION PROCESSES I (0+0) 2 credits F
200 PRODUCTION ENGINEERING (1+3) 2 credits F,S
475, 775 POWER SYSTEM DESIGN (1+3) 2 credits S
483, 783 PROPULSION SYSTEMS (3+0) 3 credits F,S
910 CONTROL SYSTEM DESIGN AND ANALYSIS (3+0) 3 credits F,S
920 HUMAN ENGINEERING (3+0) 3 credits F,S
921 ENGINEERING STATISTICS (3+0) 3 credits F,S
977 PROPULSION SYSTEMS (3+0) 3 credits F,S

Mechanical Engineering Technology (M.E.T.)

112 TECHNICAL DRAFTING (1+6) 3 credits F,S
Designed to provide fundamental knowledge of principles of drafting and to develop skill in basic techniques of using drafting room equipment.

114 INTRODUCTION TO TECHNOLOGY (3+0) 3 credits F
Broadens the student's subjective knowledge of basic technical subjects, i.e., physics, chemistry, natural environments, and introduces the operational organization and ethical standards of technical concerns.

123 TECHNICAL DRAFTING II (1+6) 3 credits S
Continuation of M.E.T. 112 with emphasis in the area of mechanical and civil drafting. A graphic study of points, lines, and planes in space. The topics of shade and shadow and intersection of surface also covered. Prerequisite: M.E.T. 112.

224 STATICS AND STRENGTH OF MATERIALS (4+0) 4 credits F,S
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.

252 ELEMENTARY THERMODYNAMICS AND HEAT TRANSFER (3+0) 3 credits F
Basic thermodynamic laws, properties of pure and mixed gases, gas cycles, and basic heat transfer processes. Prerequisite: Phys. 103.

254 TECHNICAL ECONOMICS (3+0) 3 credits S
Study of basic economics emphasizing relation to technical operations.

255 PROPERTIES OF MATERIALS (2+0) 2 credits S
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.

256 ELEMENTARY FLUID FLOW (2+0) 2 credits F,S
Principles of elementary thermodynamics and fluid mechanics covered to give the student some knowledge of hydraulics and refrigeration-air conditioning.

257 DYNAMICS (3+0) 3 credits F,S
Study of the forces developed in moving machinery. Motion of particles, rotating bodies, and other problems of interest.

258 STRUCTURAL ANALYSIS (3+0) 3 credits F,S
Methods of indeterminate structural analysis such as moment distribution, slope deflection, and virtual work on an introductory level.

260 RESEARCH REPORT (SPECIAL PROBLEM) 1 to 4 credits F,S
Individual assignment to the development of apparatus of special interest to the student with the instructor's approval. A written report of the work is required.

261 MACHINE DRAFTING-DESIGN I (1+6) 3 credits F
Elements of the design of machinery and mechanisms, including graphical representation of the final design. Prerequisite: M.E.T. 123.

262 AIR CONDITIONING, HEATING AND VENTILATION (3+3) 4 credits S
Calculation of heating and air conditioning loads, size selection of equipment, sizing of ducts and piping systems, design and drafting of installations, and familarization with applicable construction techniques.

264 MECHANICAL EQUIPMENT DRAFTING-DESIGN (2+6) 4 credits F,S
Techniques and procedures used in the graphical representation of piping, air-conditioning, and heating systems. Use of building codes and elementary design.

265 MACHINE DRAFTING-DESIGN II (1+6) 3 credits F,S
Elements of the design of machinery and mechanisms, including graphical representation of the final design.

Inactive Courses

251 GRAPHIC ANALYSIS (1+3) 2 credits F,S
253 MACHINE LAYOUT AND GRAPHICAL ANALYSIS (1+6) 3 credits F
263 POWER AND TRANSMISSION SYSTEMS (3+0) 3 credits S
267 MANUFACTURING PROCESSES (2+0) 2 credits F,S
268 MACHINERY DYNAMICS (2+0) 2 credits F,S
269 ELECTRICAL DRAFTING-DESIGN (1+6) 3 credits F,S

Medical Sciences (Med.S.)

A. PROFESSIONAL INTRODUCTION AND ORIENTATION TO MEDICINE (2+0) 0 credit F
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.

B. ADVANCE PROFESSIONAL ORIENTATION TO MEDICINE (1+0) 0 credit F
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.

105 CLINICAL MICROSCOPY (2+2) 3 credits
Study of certain body fluids, their general characteristics in health and disease, including urinalysis, gastric analysis, pregnancy tests, semen analysis, and spinal fluid. Enrollment limited to medical technology students.

190 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 12 credits.

203-204 ADVANCED GENERAL PSYCHOLOGY (2+3) 3 credits each F,S
(See Psy. 203-204 for description.)

251 HUMAN BIOLOGY I (3+0) 3 credits F
Human dissection and integration of gross anatomy with histology, embryology, and neuroanatomy. Introductory physiology of the major organ systems. Demonstrations and laboratory exercises. Prerequisite: Chem. 171 and 172.

252 HUMAN BIOLOGY II (3+0 or 6) 3 or 5 credits S
Lectures and demonstrations involving correlation of human anatomy and physiological background for clinical application. Conferences on major clinical concepts. Prerequisite: Med.S. 251.

290 INDEPENDENT STUDY 1 to 3 credits
Identification of problem in field of health sciences. Pursuit of actual research problem with approval of guidance by faculty committee. May be repeated to a maximum of 12 credits.

303 HEMATOLOGY (2+6) 4 credits F
Theory and practice of hematology as applied to clinical laboratory. Students practice in actual laboratory setting. Prerequisite: Med.S. 251. Enrollment limited to medical technology students.

304 IMMUNO-HEMATOLOGY (2+3) 3 credits S
Principles of immunology as applied to the human blood system. Heavy involvement is made to typing and cross-matching of blood and other immunological problems. Enrollment limited to medical technology students.

306 CLINICAL MICROBIOLOGY I (3+3) 4 credits
The application of microbiological techniques to clinical laboratories in the identification of bacteriological disease. Enrollment limited to medical technology students.

307 CLINICAL MICROBIOLOGY II (3+3) 4 credits
The application of microbiological techniques to the identification of fungal, viral, and parasitic disease and an introduction to clinical diagnostic serology. Enrollment limited to medical technology students.

309 MEDICAL LABORATORY CALCULATION (2+0) 2 credits F
Introduction to statistics and statistical technics applicable to clinical laboratory quality control. Prerequisite: Chem. 171 or equivalent.

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 F,S
(See E.E. 337 for description.)

338 COMPUTER APPLICATIONS FOR THE HEALTH SCIENCES (1+0) 1 credit F,S
(See E.E. 338 for description.)

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. May be repeated to a maximum of 12 credits.

401, 701 MEDICAL ORIENTATION A (2+0) 0 credit F
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. *S/U only.*

403 MEDICAL ORIENTATION B (1+0) 0 credit F
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. *S/U only.*

409 CLINICAL CHEMISTRY (2+6) 4 credits
Applies the principles of biochemistry to specific diagnostic chemical determinations in health and disease. Enrollment limited to medical technology students.

411, 711 CELL BIOLOGY IN HEALTH AND DISEASE (3+3) 4 credits F
Considerations 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.

413, 713 TISSUE BIOLOGY IN HEALTH AND DISEASE (3+3) 4 credits F
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 (2+3) 2 credits S
Study of the blood in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

420 PATHOBIOLOGY (5+6) 7 credits F
Study of the nature of diseases produced by infectious microorganisms and noninfectious processes. Differentiation of causes and effects of major disease entities as revealed by the study of general pathology and microbiology.

422 MEDICAL TECHNOLOGY INTERNSHIP I (0+12) 4 credits
Provides practical supervised experience and training in a hospital laboratory setting in microbiology and serology.

423 MEDICAL TECHNOLOGY INTERNSHIP II (0+12) 4 credits
Provides practical supervised experience and training in a hospital laboratory setting in hematology and immuno-hematology.

424 MEDICAL TECHNOLOGY INTERNSHIP III (0+12) 4 credits
Provides practical supervised experience and training in a hospital setting in routine clinical chemistry.

425 MEDICAL TECHNOLOGY INTERNSHIP IV (0+12) 4 credits
Provides practical supervised experience and training in a hospital laboratory setting in clinical microscopy, toxicology, and in isotopic, cytologic, and histologic techniques.

430 INTEGUMENTARY SYSTEM (2+0) 2 credits S
Study of the 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 (3+0) 3 credits S
Study of the musculoskeletal system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

434 CARDIAC SYSTEM (3+2) 5 credits S
Study of the cardiac portion of the cardiovascular system in health and disease and the differentiation of the most important and common diseases of the cardiovascular system. Basic approaches to diagnosis and treatment.

435 VASCULAR SYSTEM (2+3) 3 credits S
Study of the vascular system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

437 RESPIRATORY SYSTEM (5+3) 6 credits S
Study of the 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 (6+6) 8 credits F
Study of the gastrointestinal system and abdomen in health and disease and the differentiation of the most important and common diseases. Basic approches to diagnosis and treatment are considered.

441 RENAL SYSTEM AND LOWER URINARY TRACT (3+3) 4 credits F
Study of the 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 (3+3) 4 credits F
Study of the 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.

444 CENTRAL NERVOUS SYSTEM (6+3) 7 credits S
Study of the 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.

446 ENDOCRINOLOGY (2+3) 3 credits S
Study of endocrinology in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

448 REPRODUCTIVE SYSTEM (3+3) 4 credits S
Study of the reproductive system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

450 INTERSYSTEM BIOLOGY IN HEALTH AND DISEASE (2+3) 3 credits S
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.

460 BEHAVIORAL SCIENCE (3+0) 3 credits F
Development of knowledge and skills concerning personal, interpersonal, and social factors in health and disease and in the patient-doctor relationship. *S/U only.*

461 HUMAN BEHAVIOR (7+0) 7 credits S
Study of normal and abnormal human behavior, at the biological, psychological, and social levels. Emphasis on evaluation of dysfunctional behavior and diagnosis of basic syndromes. Style of presentation is through problem solving, using multimedia and programmed presentation.

463-464 ADVANCED BEHAVIORAL SCIENCE (3+0) 3 credits each F-S
(See Med.S. 461 for description.)

470-471 CLINICAL SCIENCE (0+3) 1 credit each F-S
Skills in the performance of history taking and physical examination of each of the systems in health and disease. Consideration of the nature of health and disease and the response to treatment in individual patients. *S/U only.*

473-474 ADVANCED CLINICAL SCIENCE (0+1) 1 credit each F-S
(See Med.S. 470-471 for description.) *S/U only.*

476 COMMUNITY MEDICINE (0+3) 1 credit S
Survey and practice in determining the social factors in disease and health. Epidemiological methods and approaches to the understanding of the origin and eradication of disease.

477-478 ADVANCED COMMUNITY MEDICINE (0+1) 1 credit each F-S
(See Med.S. 476 for description.)

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 12 credits.

925 MEDICAL HUMAN ANATOMY (4+12) 8 credits SU
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.

926 HEAD AND NECK ANATOMY I (2+3) 3 credits F,S
Emphasis on clinical correlation and related aspects of oral biology. Prerequisite: a degree in medicine or dentistry.

927 HEAD AND NECK ANATOMY II (2+3) 3 credits F,S
Continuation of Med.S. 926. Detailed anatomy and dissection of the deeper head areas with emphasis on the oral cavity. The neurological implications of lesions of cranial nerves. Prerequisite: Med.S. 926.

928 ADVANCED HUMAN NEUROANATOMY AND NEUROPHYSIOLOGY (2+3) 3 credits F,S
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.

Metallurgical Engineering (Met.E.)

101 INDUSTRY ORIENTATION LECTURES (1+0) 1 credit F
(See Min.E. 101 for description.)

102 INTRODUCTION TO METALLURGICAL AND CHEMICAL PROCESSES (2+0) 2 credits S
(See Ch.E. 102 for description.)

151 INTRODUCTION TO MATERIALS (3+0) 3 credits F
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 F
An 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 (2+3) 3 credits S
Scientific bases of chemical metallurgy: stoichiometry, thermodynamics, fuels and combustion, material and heat balances, heat and fluid flow, refractories, fluxes and slags. Problem solving is emphasized. Field trip. (Same as Ch.E. 232.)

301 CHEMICAL OR METALLURGICAL INDUSTRY REPORT 1 credit F,S SU
(See Ch.E. 301 for description.)

311 METALLURGICAL ANALYSIS (0+3) 1 credit F
Special methods not ordinarily included in chemical analysis as applied to metallurgical products.

322 MINERAL PROCESSING I (3+3) 4 credits S
Principles and practices of mineral preparation and concentration. Field trip. Prerequisite: Geol. 211.

332 UNIT PROCESSES OF CHEMICAL METALLURGY I (3+0) 3 credits F
A 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+3) 4 credits S
A study of the internal structure of materials, the dependence of properties upon these structures, and the behavior of materials in service.

416, 716 X-RAY METALLOGRAPHY (2+3) 3 credits S
The generation and properties of X-rays; radiography; diffraction techniques; structure determination; spectroscopy and microscopy.

421, 721 MINERAL PROCESSING II (1+6) 3 credits F
Continuation of Met.E. 322 with emphasis on flotation. Prerequisite: Met.E. 322.

423, 723 SURFACE CHEMISTRY OF MINERALS (3+0) 3 credits F
Thermodynamics of surfaces, electrostatic and electrokinetic phenomena, adsorption at interfaces, and properties of monolayers as applied to processing of minerals. Prerequisite: Chem. 354.

425, 725 HYDROMETALLURGICAL REACTIONS (3+0) 3 credits F
Systematic treatment embracing dissolution of minerals, leaching, precipitation, and complex formation in aqueous systems. Prerequisite: Chem. 354.

431, 731 UNIT PROCESSES OF CHEMICAL METALLURGY II (3+0 or 3) 3 or 4 credits F
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. Bowdish.

433-434
733-734 ADVANCED METALLURGY 1 to 4 credits each F-S
Advanced studies in mineral dressing or chemical metallurgy (including laboratory investigations).

451, 751 PHYSICAL METALLURGY (2+3) 3 credits F
Supplementary and advanced treatment of topics introduced in Met.E. 350.

462, 762 THERMODYNAMICS OF IRREVERSIBLE PROCESSES (3+0) 3 credits S
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.) Smith.

495-496
795-796 SPECIAL PROBLEMS 1 to 3 credits each F-S SU
Individual research problems in metallurgy.

901-902 ADVANCED METALLURGY 1 to 5 credits each F-S SU
(a) General metallurgy, (b) Metallurgical analysis, (c) Mineral dressing, (d) Pyrometallurgy, (e) Hydrometallurgy, (f) Electrometallurgy, (g) Nonferrous metallurgy, (h) Ferrous metallurgy, (j) Physical metallurgy, (k) Metallography, (m) Heat treatment, (n) Mechanical metallurgy, (p) History of metallurgy. These courses consist of either lectures, periodic conferences, supervised reading, laboratory or field work. May be elected more than once to pursue different studies.

915 X-RAY DIFFRACTION (1+6) 3 credits F
Theory of X-ray diffraction and methods used in obtaining and interpreting X-ray diffraction diagrams.

962 STATISTICAL THERMODYNAMICS (3+0) 3 credits S
Introduction to statistical thermodynamics with applications to metallurgy and chemical engineering. Prerequisite: Ch.E. 361.

991-992 MINERAL INDUSTRY SEMINAR 1 to 3 credits F-S
Review and discussion by staff members and graduate students of individual research or important new publications concerning the mineral industry and related sciences. Prerequisite: graduate or faculty standing. (Same as Geol. 991-992 and Min.E. 991-992.)

997 THESIS 1 to 6 credits F,S SU

Inactive Courses

441, 741 METALLURGY OF REACTIVE METALS (2+0) 2 credits F
452, 752 INTRODUCTION TO THE STRUCTURE AND PROPERTIES OF SOLIDS (3+0) 3 credits S
938 METALLURGY OF REFRACTORY METALS (2+0) 2 credits S
951 PHYSICS OF METALS (3+0) 3 credits F
952 MAGNETIC PROPERTIES OF SOLIDS (3+0) 3 credits S

Military Science (Mil.)

A. MILITARY ORIENTATION (1+0) 0 credit F,S SU
Explanation of available options for military service, various commissioning programs, the Selective Service System, conscientious objection, organization of the defense establishment, and factors of national power and security.

101 INTRODUCTION TO MILITARY SCIENCE (1+1) 1 credit
Introduction to the history, organization, mission, and function of each armed service, the Reserves, National Guard, and the ROTC; multiple available options for military service; definition and principles of war; basic factors and instruments of national power; operation of the defense establishment.

102 SMALL UNIT FUNCTIONS (1+1) 1 credit
Introduction to the combat and support organization of Army squad-size units and how these units function in field and garrison situations; individual weaponry; basic organization and operation of the Army.

201 MILITARY TOPOGRAPHY AND U.S. MILITARY HISTORY PART I (2+1) 2 credits
Study of the proper use and appreciation of military maps, photos and compasses; historical development of the American Army from 1775 to 1898. (Focus is directed toward strategy, tactics and military/societal relationships.)

202 SMALL UNIT TACTICS AND U.S. MILITARY HISTORY PART II (2+1) 2 credits
Study of principles and techniques of squad tactics and control; historical development of American Army from 1898 to present. (Focus is directed toward strategy, tactics and military/societal relationships.)

301 LEADERSHIP IN SMALL UNIT OPERATIONS (3+1) 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 misssions, roles and contributions of the several branches of the Army. Prerequisite: completion of basic program.

302 ADVANCED LEADERSHIP DEVELOPMENT (3+1) 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.

401 SEMINAR ON THEORY AND DYNAMICS OF THE MILITARY TEAM (3+1) 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.

402 SEMINAR IN LEADERSHIP AND MANAGEMENT (3+1) 3 credits
Stresses numerous administrative and logistical matters which confront the commander at platoon and company level. Introduction to principles of personnel, fiscal and supply management and role of the United States as a world power. Prerequisite: completion of basic program.

Mining Engineering (Min.E.)

A. MINERAL INDUSTRY EMPLOYMENT 0 credits SU
A student majoring in Mining Engineering is required to work for a mining company for at least two summer vacations in order to graduate.

101 INDUSTRY ORIENTATION LECTURES (1+0) 1 credit F
Introduction to the mineral and chemical industry.

213 COMPUTER PROGRAMMING (1+3) 2 credits F
Development of procedures to solve numerical and nonnumerical earth science problems by digital computer, using flow charts and FORTRAN IV. Mousset-Jones.

241 UNIT OPERATIONS (3+0) 3 credits F
Current drilling, blasting, mucking, hauling, and supporting systems and equipment used in underground and surface mining. Field trip required. Nelson.

246 MINING SYSTEMS (3+0) 3 credits S
Current underground and open pit mining methods. Mine design, using systems and equipment covered in Min.E. 241. Study of specialized techniques, such as shaft sinking, solution mining, under-sea mining, dredging, and future trends. Field trip required. Prerequisite: Min.E. 241. Nelson.

316 STATISTICAL ANALYSIS IN THE EARTH SCIENCES (2+0) 2 credits S
Introduction to the principles and application of statistics in the earth sciences. Methods of sampling and ore reserve evaluation. Decision making under uncertainty. Mousset-Jones.

324 COMPUTER APPLICATIONS (1+ 3 or 6) 2 or 3 credits S
Use of digital computers in the earth sciences, with emphasis on developing students' ability to use computers in industry or research. Field trip required. Prerequisite: Min.E. 213. Mousset-Jones.

342 MINE SURVEYING (0+3) 1 credit S
Theory and mathematics of mine surveying. Nelson.

343 APPLIED MINE SURVEYING (0+6) 2 credits F SU
Surface and underground surveying techniques in exploration and mining operations. A charge is made for field expenses. Prerequisite: Min.E. 342. Nelson.

344, 644 MINE ENVIRONMENTAL CONTROL (2+3) 3 credits S
Underground mining environment in relation to the provision and control of an environment conducive to safe and efficient working. Field trip. Roberts.

351, 651 MINING LAW (2+0) 2 credits F
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. Staff.

361, 661 OPERATIONS RESEARCH METHODS (3+0) 3 credits F
Introduction to operations research and engineering economics with reference to the mineral industry. Mousset-Jones.

406 SENIOR REPORT 1 to 3 credits F,S
Formal, comprehensive report on the property and mining company for which a student worked during a summer vacation. Prerequisite: senior standing. Staff.

418, 718 MINE FEASIBILITY (2+0) 2 credits S
Preparation of a mine feasibility report on a given mineral deposit. Prerequisite: Min.E. 241 and 246. Mousset-Jones.

426, 726 MINE PLANT ENGINEERING (1+6) 3 credits F
The selection, layout, and operation of mechanical, electrical, and hydraulic equipment in the design of surface and underground mining structures and systems. Prerequisite: senior standing. Nelson.

443 INTRODUCTORY GEOTECHNOLOGY (2+3) 3 credits F
Elementary concepts of engineering properties of earth materials. Prerequisite: C.E. 372, M.E. 241. Roberts.

445, 745 DRILLING AND BORING (2+3) 3 credits F
Current theory and practice in drilling and boring. Nelson.

446, 746 THEORY OF EXPLOSIVES (2+3) 3 credits S
Thermodynamic theory and the blasting action of explosives. Nelson.

448, 748 ROCK MECHANICS I (2+3) 3 credits S
Study of the engineering properties of rock materials and rock masses. Prerequisite: Min.E. 443. Roberts.

454, 754 MINING AND SURFACE ENVIRONMENT (2+0) 2 credits S
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. Staff.

464, 764 MINERAL INDUSTRY MANAGEMENT (3+0) 3 credits S
Fundamentals of planning, organizing, and controlling financial and cost accounting and organizational behavior and their application in the mineral industry. Field trip and report. Prerequisite: Min.E. 316. Mousset-Jones.

472, 772 WORLD MINERAL ECONOMICS (3+0) 3 credits F
Role of minerals in a productive economy. Interdependence of minerals in industrial society, and the problems arising out of their unequal geographic distribution and divided political control. (Same as Geog. 462.) Scheid

495-496
795-796 SPECIAL PROBLEMS 1 to 3 credits each F-S SU
Individual research problems in mining engineering.

901-902 ADVANCED MINING ENGINEERING 1 to 5 credits each F-S SU
(a) General mining, (b) Excavation, (c) Drilling, (d) Blasting, (e) Equipment, (f) Transportation, (g) Design, (h) Surface mining, (j) Underground mining, (k) Safety, (m) Ventilation, (n) Mining economics, (p) Mine administration, (r) Mining law, (s) Mineral economics, (t) History of mining, (u) Mineral explorations, (v) Rock mechanics, (w) Mining conservation, (x) Nonmetallic mining. These courses consist of either lectures, periodic conferences, supervised reading, laboratory or fieldwork. May be elected more than once to pursue different studiesm

929 ADVANCED COMPUTER APPLICATIONS 1 to 3 credits F
Study of computer systems, languages and economics. Major individual earth science project on computer. Prerequisite: Min.E. 213 or 324. Mousset-Jones.

945 ROCK MECHANICS II (2+3) 3 credits F
Field and laboratory studies of applied rock mechanics. Prerequisite: Min.E. 448. Roberts.

949 ADVANCED BLASTING METHODS DESIGN 1 to 3 credits F,S
Modern theories in the use of explosives and the design of blasting systems. Prerequisite: Min.E. 446. Nelson.

997 THESIS 1 to 6 credits F,S SU

Inactive Courses

405 SENIOR REPORT 1 to 3 credits F
482, 782 ECONOMICS OF THE BASE METALS (3+0) 3 credits S
991-992 MINERAL INDUSTRY SEMINAR 1 to 3 credits each F-S

Music (Mus.)

Music Theory

101 MUSIC FUNDAMENTALS AND EAR TRAINING (2+0) 2 credits F,S SU
Notation, terminology, intervals, and scales. Learning to read music. Designed to furnish a foundation for musicianship and is recommended for teachers in public schools.

102 SOLFEGE (SOLFEGGIO) (2+0) 2 credits F,S
A 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 F-S
A unified study of music theory including solfege, harmony (written and keyboard), and composition.

301-302 ADVANCED HARMONY (3+0) 3 credits each F-S
A 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 F,S
A 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.

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
709-710 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.

909-910 CONTEMPORARY THEORY AND PRACTICE (3+0) 3 credits each
A 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 F,S SU
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 F-S
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
A survey of 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, 706 PERFORMANCE PRACTICE (2+0) 2 credits S SU
The performance practices of various eras and their effect on presentation of representative works during the present and in their own time. May be repeated to a maximum of 6 credits.

407, 707 SYMPHONIC LITERATURE (2+0) 2 credits
A detailed study and analysis of the development of the symphony.

414, 714 CHORAL LITERATURE (2+0) 2 credits
History and analysis of representative choral works from 1600 to the present.

422, 722 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, 723 CHAMBER MUSIC LITERATURE (2+0) 2 credits
Music written for small groups in Baroque, Classical, nineteenth century, and twentieth century periods.

424, 724 AMERICAN MUSIC (2+0) 2 credits
A detailed examination of the music of the United States from the Revolutionary War to the present.

426, 726 VOCAL LITERATURE (2+0) 2 credits
A survey of the solo and chamber vocal music from the Renaissance to the present.

428, 728 OPERA LITERATURE (2+0) 2 credits
Detailed consideration of selected operas of the various nationalities and periods in music history.

495, 795 INDEPENDENT STUDY 1 or 2 credits F,S SU
Open to students specializing in music. May be repeated to a maximum of 4 credits.

990 SEMINAR IN MUSIC 1 to 3 credits F,S SU
Special problems in music history or theory with their professional implications. May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits F,S SU
(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[1]

151-251-351-451-951
PIANO (½ or 1+0) 1 or 2 credits each F,S SU
May be repeated to a maximum of 4 credits each.

153-253-353-453-953
VOICE (½ or 1+0) 1 or 2 credits each F,S SU
May be repeated to a maximum of 4 credits each.

155-255-355-455-955
BRASS INSTRUMENTS (½ or 1+0) 1 or 2 credits each F,S SU
May be repeated to a maximum of 4 credits each.

157-257-357-457-957
WOODWIND INSTRUMENTS (½ or 1+0)
1 or 2 credits each F,S SU
May be repeated to a maximum of 4 credits each.

159-259-359-459-959
STRINGS (½ or 1+0) 1 or 2 credits each F,S SU
May be repeated to a maximum of 4 credits each.

161-261-361-461-961
PERCUSSION (½ or 1+0) 1 or 2 credits each F,S SU
May be repeated to a maximum of 4 credits each.

163-263-363-463-963
ORGAN (½ or 1+0) 1 or 2 credits each F,S SU
May be repeated to a 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. May be repeated to a maximum of 4 credits.

123 CLASS STRING INSTRUCTION (2+0) 2 credits
Elementary instructions 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 (1+1) 1 credit
For students with limited or no keyboard experience. One period of supervised practice included.

182 BEGINNING CLASS PIANO INSTRUCTION II (1+1) 1 credit
For students with limited or no keyboard experience. One period of supervised practice included.

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. May be repeated to a maximum of 4 credits.

281 ELEMENTARY CLASS PIANO INSTRUCTION I
(1+1) 1 credit
For students with minimal keyboard experience or as a continuation of Mus. 181,182. One period of supervised practice included.

282 ELEMENTARY CLASS PIANO INSTRUCTION II
(1+1) 1 credit
For students with minimal keyboard experience or as a continuation of Mus. 181,182. One period of supervised practice included.

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.

[1]Individual instruction is provided on the basis of one-half period per credit. A specialized instruction fee of $60 per credit is charged for the fall and spring semesters. Students are required to attend all music department recitals as part of the course of study and participate at the discretion of the instructor.

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, 783 PIANO SEMINAR (0+2) 1 credit
Special problems in performance, literature, and pedagogy. May be repeated to a maximum of 4 credits.

918 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. May be repeated to a maximum of 4 credits.

921 ADVANCED CHORAL CONDUCTING (2+0) 2 credits
Continued study of skills required for effective direction of choral groups. Prequisite: Mus. 321 or equivalent. May be repeated to a maximum of 4 credits.

922 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. May be repeated to a maximum of 4 credits.

Performance Organizations[1]

105, 205, 305
405, 705 UNIVERSITY CHAMBER MUSIC ENSEMBLE (0+3) 1 credit each F,S SU
Performance of chamber music literature. Prerequisite: membership in corresponding large group. May be repeated to a maximum of 4 credits each.

111, 211, 311, 411 UNIVERSITY SINGERS (0+3) 1 credit each F,S
Study and performance of representative choral music of all periods. This group assists in the presentations of the symphonic choir and is featured in concerts locally and on tour. Required of all vocal music majors. May be repeated to a maximum of 4 credits each.

117, 217, 317, 417 UNIVERSITY BAND (0+3) 1 credit each F,S
A select group of instrumentalists with previous high school or college band experience. Concerts are given in Reno and other cities. May be taken once as P.Ed. 123 field drill in fall semester. May be repeated to a maximum of 4 credits each.

119, 219, 319, 419 SYMPHONIC CHOIR (0+2) 1 credit each F,S
This group specializes in the study and presentation of large-scale choral works in cooperation with the University Symphony. May be repeated to a maximum of 4 credits each.

125, 225, 325, 425 UNIVERSITY OF NEVADA COMMUNITY SYMPHONY (0+3) 1 credit each F,S
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. May be repeated to a maximum of 4 credits each.

215, 415, 715 BRASS QUINTET (0+2) 1 credit
A performing ensemble specializing in brass quintet literature. May be repeated to a maximum of 4 credits each.

220, 420, 720 BRASS ENSEMBLE (0+3) 1 credit
A performance organization specializing in brass ensemble literature from the Renaissance to the present. May be repeated to a maximum of 4 credits each.

[1]A maximum total of 12 credits shall be allowed any student toward graduation requirements for participation in the three types of musical organizations (band, chorus and orchestra), to be distributed as the student prefers, with not more than 8 credits in any one organization.

230, 430, 730 UNR CONCERT JAZZ BAND (0+3) 1 credit
A performing ensemble specializing in jazz and rock literature and performance practices. May be repeated to a maximum of 4 credits each.

270 OPERA THEATER I (0+2) 1 credit F,S SU
Beginning music theater techniques for singers, pianist-coaches, stage directors, including production and performance. May be repeated to a maximum of 4 credits.

470 OPERA THEATER II 1 to 3 credits F,S SU
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. May be repeated to a maximum of 8 credits.

905 ADVANCED OPERA PERFORMANCE 1 or 2 credits F,S SU
Performance of major roles in University Opera productions. May be repeated to a maximum of 4 credits.

911 ADVANCED CHORAL PERFORMANCE (0+2) 1 credit F,S
Study and performance of representative choral music of all periods, including major choral works. Appearance in concerts locally and on tour will be required, and work beyond ensemble participation, such as that of assistant conductor, section leader, or soloist will be expected. May be repeated to a maximum of 2 credits.

917 ADVANCED INSTRUMENTAL PERFORMANCE (0+3) 1 credit F,S
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. May be repeated to a maximum of 2 credits.

Music Education

324 TEACHING OF ELEMENTARY MUSIC (2+0) 2 credits F,S SU
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 S.Ed. 349.)

446 PRECISION DRILL WORKSHOP (1+3) 1 credit SU
Deals with all phases of field drill. Lecturers, demonstration groups, films, and participation in drill.

447, 747 DIRECTORS' WORKSHOP (1+0) 1 credit SU
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. May be repeated to a maximum of 3 credits.

448, 748 ADVANCED BAND ADMINISTRATION AND RELATED PROBLEMS (2+0) 2 credits SU
Organizing the program, administering the physical plant and equipment, establishing favorable teacher-pupil relations, directing the musical program, and review of recent developments in the field. Prerequisite: teaching experience or exceptional background in the area.

450, 750 PIANO MATERIALS AND METHODS (2+0) 2 credits
The mechanics of piano teaching; technical and pedagogical literature, typical problems and solutions, the historical development of piano pedagogy.

Inactive Courses

337 STAGE BAND ARRANGING (2+2) 2 credits
348 ADVANCED INSTRUMENTAL TECHNIQUES (2+0) 2 credits
401 ADVANCED STAGE BAND ARRANGING (2+2) 2 credits
427 MARCHING BAND PROBLEMS (2+0) 2 credits SU
449, 749 CHORUS PROBLEMS (2+0) 2 credits SU
900-901 ADVANCED COMPOSITION (2+0) 2 credits each
902 THE AESTHETICS AND PHILOSOPHY OF MUSIC (2+0) 2 credits
915 STUDIES IN ELIZABETHAN AND TUDOR MUSIC (2+0) 2 credits
924 PHILOSOPHY OF MUSIC EDUCATION (2+0) 2 credits SU

Nuclear Engineering (N.E.)

101 SURVEY OF THE NUCLEAR INDUSTRY (1+0) 1 credit F
Brief survey course to introduce student in engineering or the physical or biological sciences to nuclear industry.

350 NUCLEAR ENERGY CONVERSION (3+0) 3 credits F,S
General discussion of nuclear fuel cycles, nuclear reactor core design, power plants, reactor electrical systems, types of reactor systems, shielding, and environmental impact. Prerequisite: Math. 182.

371 NUCLEAR ENERGY AND THE ENVIRONMENT (3+0) 3 credits F
Nontechnical course concerning nuclear power and its effect upon the environment and including discussions of other utilizations of nuclear energy, radiation, and radioisotopes. Not open for credit to engineering majors.

372 NUCLEAR MEASUREMENT LABORATORY FOR NONENGINEERS (0+3) 1 credit F
A laboratory course covering the characteristics of nuclear measuring equipment and the use of such equipment in applications relating to industry, biology, geology, the physical sciences, and the environment. Not open for credit to engineering majors.

401 INTRODUCTION TO NUCLEAR ENGINEERING I (3+0) 3 credits S
Discussion of fundamental particles and reactions; materials related to reactor construction and use; fuels and related topics; instrumentation; health physics; and introduction to nuclear analytical techniques. Prerequisite: Math. 221.

402 INTRODUCTION TO NUCLEAR ENGINEERING II (3+0) 3 credits F
Principle of nuclear reactors, their operation and construction, types of reactors, radiation hazards, and radioactive waste treatment and disposal. Prerequisite: N.E. 401.

404 ELEMENTARY NUCLEAR ENGINEERING LABORATORY (0+3) 1 credit S
Introduction to the characteristics of nuclear reactors and other critical systems. Also introduction to nuclear measuring and detection equipment. Prerequisite or corequisite: N.E. 402.

422, 722 UNIT OPERATIONS FOR NUCLEAR ENGINEERS (3+0) 3 credits F
A study of those unit operations which apply to the processing of nuclear fuels. Prerequisite: Chem. 354.

433 CORROSION OF MATERIALS (3+0) 3 credits F
Principles of corrosion of materials. Prerequisite: Math. 221, Met.E. 350.

451, 751 NUCLEAR ENERGY CONVERSION II (3+0) 3 credits
Study of power generation by nuclear means, continued from N.E. 350. Prerequisite: Math. 221 and N.E. 350.

481 RADIATION DAMAGE TO MATERIALS (3+0) 3 credits S
Effect of nuclear radiations upon materials. Prerequisite: Math. 221, Met.E. 350.

495-496
795-796 SPECIAL PROBLEMS I, II (1+0 per credit) 1 to 3 credits each F-S
Specialized study in any of the subjects pertaining to nuclear engineering. The subject matter must have the approval of instructor and department chairman. May be repeated to a maximum of 6 credits each.

901 REACTOR ANALYSIS I (3+0) 3 credits F
A study of the equilibrium and transient states of nuclear reactors. Prerequisite: N.E. 402.

902 REACTOR ANALYSIS II (2+0) 2 credits S
Continuation of N.E. 901. Prerequisite: N.E. 901.

903 SHIELDING (3+0) 3 credits F
Shielding problems arising from nuclear radiations. Prerequisite: N.E. 402.

905 NUCLEAR ENGINEERING LABORATORY I (0+3) 1 credit F
Experiments involving use of the department's operating nuclear reactor. Prerequisite: N.E. 402.

906 NUCLEAR ENGINEERING LABORATORY II (0+3) 1 credit S
A continuation of N.E. 905 plus experiments involving use of a neutron generator. Prerequisite: N.E. 905.

921 NUCLEAR INSTRUMENTATION (2+0) 2 credits F
A study of equipment used in conjunction with nuclear reactors, particle accelerators, neutron generators, etc., as well as equipment used for detection and monitoring of nuclear radiations. Prerequisite: N.E. 402.

932 NUCLEAR PROCESSING (3+0) 3 credits S
Chemical processing of radioactive materials. Prerequisite: N.E. 422.

941 THERMONUCLEAR ENGINEERING I (3+0) 3 credits F
A study of thermonuclear theory and of the equipment used in this field of study. Corequisite: N.E. 901.

942 THERMONUCLEAR ENGINEERING II (3+0) 3 credits S
Continuation of N.E. 941. Prerequisite: N.E. 941.

951 REACTOR DESIGN I (3+0) 3 credits F
Heat transfer and fluid flow problems relating to the design of nuclear reactors. Corequisite: same as N.E. 901.

952 REACTOR DESIGN II (3+0) 3 credits S
Nuclear reactor design problems. Prerequisite: N.E. 951.

997 THESIS 1 to 6 credits F,S

999 DISSERTATION 1 to 24 credits F,S SU

Nursing (Nurs.)

A. PROFESSIONAL ASSESSMENT SEMINAR (3+9) 0 credit
For students seeking advanced standing in nursing. Initial evaluation and individual study in preparation for assessment on objectives of Nurs. 222 (8 credits maximum) and Nurs. 201 (2 credits maximum). (Equivalent to 10 credits for fee assessment.) *S/U only*.

201 SKILLS AND SELF-LEARNING LABORATORY (0+3 to 9) 1 to 3 credits
Principles, practice and application of basic technical skills, communication skills, and terminology as related to nursing; experience in multimedia laboratory. Open to all nursing majors. May be repeated to a maximum of 3 credits. *S/U only*.

222 COMPONENTS OF DYNAMIC NURSING (4+12) 1 to 8 credits
Relates natural and social science content in the implementation of current nursing skills with individuals and families. Prerequisite: Nurs. 104, 201, completion of specified natural and social sciences.

301 SKILLS AND SELF-LEARNING LABORATORY
(0+9 to 18) 3 to 6 credits
Principles, practice, and application of advanced technical skills required to provide care in health maintenance and crises. Experiences in multimedia laboratory and/or health facility. May be repeated to a maximum of 6 credits. *S/U only*.

322 NURSING CARE OF ADULTS AND CHILDREN I
(3+18) 3 to 9 credits
Major focus is on concepts of nursing, principles of natural, behavioral sciences as implemented in the nursing care of individuals, groups, and families. Prerequisite: Nurs. 222, natural and behavioral science sequence. Corequisite: Nurs. 323.

323 COMPONENTS OF HEALTH AND ILLNESS I
(3+0) 3 credits
Concepts of sociology, psychology, physiology, and pathology related to therapeutic process. Prerequisite: nursing majors—natural, behavioral science sequence. Nonmajors—6 credits each in chemistry, anatomy-physiology, behavioral science.

332 NURSING CARE OF ADULTS AND CHILDREN II
(3+18) 3 to 9 credits
Major focus on nursing action based on nursing theory and scientific rationale in care of individuals, groups, and families. Prerequisite: Nurs. 322, 323, natural and behavorial science sequence. Corequisite: Nurs. 333.

333 COMPONENTS OF HEALTH AND ILLNESS II
(3+0) 3 credits
Concepts of sociology, psychology, physiology, and pathology related to the therapeutic process. Prerequisite: Nurs. 323.

342 PHYSICAL AND PSYCHOSOCIAL ASSESSMENT (2+2) 4 credits
Theory and techniques of assessing the physical and psychosocial health status of individuals of all ages through history taking, physical examination, diagnostic testing, and screening. Correlated clinical practice.

352 FAMILY AND COMMUNITY ASSESSMENT (2+1) 3 credits
Concept of individuals, family and small group dynamics as applied to a helping relationship. Study of interrelationship of individual's health status in the family and community. Correlated clinical practice.

353 HEALTH CARE STRATEGIES (2+0) 2 credits
Concept of community and social organization involved in the delivery of health care. Emphasis is on the utilization of power, role identification for the rural nurse practitioner, and the operant political forces underlying social change for health care.

362 PRIMARY HEALTH MAINTENANCE (2+1) 3 credits
Concepts and theory of primary health maintenance for individuals of all ages. Emphasis on case finding, teaching, and initiation and supervision of therapeutic and preventative health care measures. Selected new trends to be incorporated. Correlated clinical practice.

372 PRACTICUM IN CORONARY CARE NURSING
(0+3) 1 credit
An intensive experience and workshop activities in a selected coronary care unit or intensive care unit. Prerequisite: Nurs. 373.

373 CORONARY CARE NURSING (3+3) 4 credits
Study of basic coronary care concepts and principles with emphasis on nursing skills for comprehensive patient care in a specialized hospital unit. Prerequisite: registered nurse licensed in Nevada.

382 PRACTICUM IN CORONARY CARE NURSING
(0+3) 1 credit
An intensive clinical experience and workshop activities in a selected coronary care unit or intensive care unit. Prerequisite: Nurs. 373, presently employed in a specialized care unit.

391-392 INDEPENDENT STUDY 1 to 8 credits
Opportunity for students to master areas of knowledge through independent organization and assimilation of materials under guidance of faculty advisers.

401 SKILLS AND SELF-LEARNING LABORATORY
(0+6 to 12) 2 to 4 credits
Principles, application and practice of complex scientifically based skills in a variety of health care settings. Evaluation in multi-media laboratory and/or health care setting. May be repeated to a maximum of 4 credits. Prerequisite: completion of the junior year self-learning skills course. *S/U only*.

422 LEADERSHIP IN NURSING I (3+21) 1 to 10 credits
Examination of and experience in a variety of health care settings with emphasis on the philosophy of health delivery systems. Prerequisite: completion of junior year sequence.

432 LEADERSHIP IN NURSING II (2+24) 1 to 10 credits
Planning, providing, coordinating and evaluating comprehensive health care in a variety of settings with emphasis on scope and trends of health care delivery. Prerequisite: Nurs. 422.

444 FUNDAMENTALS OF NURSING RESEARCH
(3+0) 3 credits
Study of research methodology with specific emphasis on its application to nursing practice, trends and current issues. Prerequisite: completion of junior year nursing sequence, statistics completed or taken concurrently.

445 PRACTICUM IN NURSING RESEARCH (0+6) 2 credits
Experience in examining nursing practice by utilization of problem-solving methodology. Prerequisite: Nurs. 444.

491-492 INDEPENDENT STUDY 1 to 8 credits
(See Nurs. 391-392 for description.)

900 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.

901 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. 900, 910.

902 PRACTICUM: NURSING LEADERSHIP IN HEALTH CARE ORGANIZATIONS (1+9) 4 credits
Provides opportunity for student to select and test an idea in health care organization of choice. Student and peers analyze and discuss questions and problems generated during field of activity. Nurs. 901, 911, 920 recommended.

910 ADVANCED NURSING PRACTICE I (1+6) 3 credits
Appraisal of current concepts in professional literature relevant to an area of nursing practice chosen by student. Implementation and evaluation of selected concepts through nursing practice experience.

911 ADVANCED NURSING PRACTICE II (0+9) 3 credits
Student selects several current concepts relevant to professional practice, designs a project utilizing these concepts, implements and evaluates the project. Prerequisite: Nurs. 910.

920 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.

991 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. May be repeated to a maximum of 6 credits.

996 PROFESSIONAL PAPER 2 credits
Required of all students who wish to complete a Master of Science degree under Plan B.

997 THESIS 1 to 6 credits
Required of all students who wish to complete a Master of Science degree under Plan A.

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 equivalent.

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
The theory of shorthand. Unless the student has had previous training in typewriting, O.A. 101 (Elementary Typewriting) should be taken concurrently.

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, 704 BUSINESS COMMUNICATIONS 3 credits
Problems and processes of business communication, verbal and nonverbal, and the conventions of business writing.

490, 790 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. May be repeated to a maximum of 6 credits.

990 INDEPENDENT RESEARCH 1 to 3 credits
Advanced study and research in office organization and management. Prerequisite: graduate standing.

Philosophy (Phil.)

110 SURVEY OF PHILOSOPHY (3+0) 3 credits
Basic problems in different areas of philosophy such as ethics, political theory, metaphysics, and epistemology.

111 SURVEY OF SOCIAL AND POLITICAL PHILOSOPHY (3+0) 3 credits
A discussion of the social and political theories which have influenced the development of Western civilization and the significance of these theories for contemporary society.

112 WORLD RELIGIONS (3+0) 3 credits
The main moral and religious doctrines of Hinduism, Buddhism, Confuscianism, Taoism, Islam, Judaism, and Christianity.

114 INTRODUCTION TO LOGIC (3+0) 3 credits
Methods and principles of correct reasoning and argumentation with application to the various sciences.

201 SURVEY OF ETHICAL THEORIES (3+0) 3 credits
Theories concerning the nature of morality. Topics include an analysis of duty, interest, right and wrong, good and evil.

202 SURVEY OF AESTHETICS (3+0) 3 credits
Aesthetic standards, artistic creativity, and art in relation to morals.

203 SURVEY OF EXISTENTIALISM (3+0) 3 credits
Readings from Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger. An examination of the existentialist concepts "being" and "non-being", "estrangement", "dread", "anxiety", and "freedom".

211 ANCIENT PHILOSOPHY (3+0) 3 credits
A study of the 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.

221 SURVEY OF AMERICAN PHILOSOPHY (3+0) 3 credits
The development of philosophical thought in America with particular emphasis on pragmatism.

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.

315 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.

321 PHILOSOPHY OF EDUCATION (3+0) 3 credits
Consideration of basic philosophical issues relating to the values and aims of education.

322 SOCIAL AND POLITICAL PHILOSOPHY (3+0) 3 credits
A study of philosophical questions concerning the nature and aims of states and societies.

323 PHILOSOPHY OF RELIGION (3+0) 3 credits
The 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.

324 PHILOSOPHY OF SCIENCE (3+0) 3 credits
An analysis of basic characteristics of scientific methods as exemplified in the various sciences; philosophical implications of the sciences.

325 PHILOSOPHY OF HISTORY (3+0) 3 credits
A discussion of historical methods, the idea of progress and meaning in history.

326, 626 SYMBOLIC LOGIC (3+0) 3 credits
Developments in modern logic, including characteristics of deductive systems, analysis of propositions, and techniques of deduction. (Same as Math. 307.)

394, 694 SELECTED TOPIC IN PHILOSOPHY (3+0) 3 credits
Study of a major topic or issue in philosophy. May be repeated to a maximum of 9 credits when the content differs.

400H HONORS INTERDEPARTMENTAL COLLOQUIUM (3+0) 3 credits
Interdisciplinary consideration of selected topics.

401, 701 ETHICS (3+0) 3 credits
A detailed discussion of major ethical theories.

402, 702 AESTHETICS (3+0) 3 credits
An investigation of modern trends in aesthetics.

403, 703 THEORY OF KNOWLEDGE (3+0) 3 credits
An examination of the nature of knowledge emphasizing the problem of our knowledge of the external world.

404, 704 METAPHYSICS (3+0) 3 credits
A study of theories concerning the nature of reality.

405, 705 PHILOSOPHY OF MIND (3+0) 3 credits
A study of 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.

406, 706 PHILOSOPHY OF LANGUAGE (3+0) 3 credits
An examination of selected problems in the philosophy of language such as meaning, reference, truth, and analyticity.

465, 765 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3+0) 3 credits
An interdepartmental course examining the basic presuppositions and procedures in the physical sciences. (Same as Phys. 465.)

494, 794 SELECTED TOPIC IN PHILOSOPHY (3+0) 3 credits
Study of a major topic or issue in philosophy. May be repeated to a maximum of 9 credits when content differs.

499, 799 INDIVIDUAL RESEARCH 1 to 6 credits
Pursuit by the advanced student of special interests in philosophy. May be repeated to a maximum of 12 credits.

499H INDIVIDUAL RESEARCH FOR HONORS 1 to 6 credits
Pursuit by the advanced student of special interests in philosophy. May be repeated to a maximum of 12 credits.

908 SEMINAR IN PHILOSOPHICAL PSYCHOLOGY (3+0) 3 credits F,S
(See Psy. 908 for description.)

911 SEMINAR IN MAJOR FIGURES IN THE HISTORY OF PHILOSOPHY (3+0) 3 credits
May be repeated to a maximum of 9 credits when content differs.

912 SEMINAR IN MAJOR MOVEMENTS IN THE HISTORY OF PHILOSOPHY (3+0) 3 credits
May be repeated to a maximum of 9 credits when content differs.

913 SEMINAR IN PHILOSOPHICAL PROBLEMS (3+0) 3 credits
Intensive analysis of a major topic or issue in philosophy. May be repeated to a maximum of 9 credits when content differs.

914 INTERDEPARTMENTAL COLLOQUIM (3+0) 3 credits
May be repeated to a maximum of 9 credits when content differs.

937 TEACHING METHODS IN PHILOSOPHY (1+0) 1 credit
Study of effective procedures of teaching philosophy on the college or university level. May be repeated to a maximum of 4 credits.

995 INDEPENDENT STUDY 1 to 6 credits
May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits
May be repeated to a maximum of 6 credits.

Inactive Course

212 MEDIEVAL PHILOSOPHY (3+0) 3 credits

Physical Education (P.Ed.)

100-199 PHYSICAL EDUCATION ACTIVITIES
A maximum of 3 credits from P.Ed. 100-199 may be taken during any semester or summer session except for special programs listed in the time schedule. When beginning and intermediate classes are scheduled in an activity, a student should consult the department to determine whether enrollment should be in the beginning or intermediate class. All activity classes are approved for S/U registration. (Except where noted, a student may enroll in the same class 4 times for credit.)

100-144 COEDUCATIONAL ACTIVITIES (0+2) 1 credit each
- 100 Angling and Casting
- 102 Bicycling
- 103 Archery
- 104 Badminton
- 106 Bowling
- 107 Folk and Square Dancing
- 108 Canoeing
- 109 Beginning Modern Dance[1]
- 110 Intermediate and Advanced Modern Dance
- 111 Horsemanship
- 112 Social Dance
- 113 Beginning Rock Climbing
- 114 Intermediate Rock Climbing
- 115 Backpacking
- 116 Mountaineering
- 117 Foil Fencing[1]
- 119 Karate
- 120 Beginning Golf[1]
- 121 Intermediate and Advanced Golf
- 122 Jogging
- 123 Judo
- 125 Recreational Sports
- 126 Recreational Shooting
- 127 Roller Skating
- 128 Sailing
- 129 Skiing
- 130 Ski Touring
- 131 Beginning Swimming[1]
- 132 Intermediate Swimming[1]
- 133 Advanced Swimming
- 135 Life Saving
  (May be taken for credit only 1 time.)
- 137 Scuba
- 138 Beginning Tennis[1]
- 139 Intermediate and Advanced Tennis
- 141 Trampoline
- 143 Beginning Volleyball[1]
- 144 Intermediate and Advanced Volleyball

145-161 MEN'S ACTIVITIES (0+2) 1 credit each
- 145 Conditioning
- 147 Gymnastics
- 148 Beginning Sabre Fencing[1]
- 149 Intermediate and Advanced Sabre Fencing
- 150 Handball
- 152 R.O.T.C. Conditioning
- 153 Ski Conditioning
- 155 Squash
- 157 Team Sports
- 159 Body Building
- 161 Wrestling

163-177 WOMEN'S ACTIVITIES (0+2) 1 credit each
- 163 Body Contouring and Conditioning
- 165 Beginning Gymnastics[1]
- 166 Intermediate and Advanced Gymnastics
- 168 Modern Gymnastics
- 169 Ski Conditioning
- 171 Slimnastics
- 173 Fall Team Sports
- 174 Basketball and Softball
- 175 Track and Field

[1] *May be repeated to a maximum of 2 credits.*

178-187 WOMEN'S COMPETITIVE AND DANCE PRODUCTION ACTIVITIES (0+TBA) 1 credit each semester
178 Competitive Basketball
179 Dance Production
180 Competitive Gymnastics
181 Competitive Field Hockey
182 Competitive Skiing
183 Competitive Softball
184 Competitive Swimming
185 Competitive Tennis
186 Competitive Track and Field
187 Competitive Volleyball

188-198 MEN'S INTERCOLLEGIATE ACTIVITIES (0+TBA) 1 credit each semester
188 Intercollegiate Baseball
189 Intercollegiate Basketball
190 Intercollegiate Boxing
191 Intercollegiate Football
192 Intercollegiate Golf
193 Intercollegiate Gymnastics
194 Intercollegiate Riflery
195 Intercollegiate Skiing
196 Intercollegiate Tennis
197 Intercollegiate Track and Field
198 Intercollegiate Wrestling

Physical education exemptions are listed under registration and advisement information.

201 INTRODUCTION TO PHYSICAL EDUCATION AND RECREATION (2+0) 2 credits
Background, aims, objectives, and current trends in physical education and recreation.

202 THEORY OF MOVEMENT (2+0) 2 credits F
An analysis of movements; comparison of movement patterns, purposes, and organizations within sports and dance.

206 FUNDAMENTAL RHYTHMIC ACTIVITIES (0+4) 2 credits F,S
Folk, square and social dance; elementary rhythmic activities.

221 OFFICIATING WOMEN'S BASKETBALL (0+3) 1 credit S
Rules, techniques and practice in basketball officiating.

222 OFFICIATING WOMEN'S VOLLEYBALL (0+3) 1 credit F
Rules, techniques and practice in volleyball officiating.

224 OFFICIATING WOMEN'S SOFTBALL (0+3) 1 credit S
Rules, techniques and practice in softball officiating.

240 RECREATION AND PLAYGROUND LEADERSHIP (1+2) 2 credits S
Application of leadership techniques to community recreation and playground programs. Instruction and practical experience in specific recreation leadership skills.

260 TECHNIQUES FOR AQUATICS (0+3) 1 credit F,S
Instruction in aquatics for majors and minors in physical education.

261 TECHNIQUES FOR ARCHERY, BADMINTON AND BOWLING (0+3) 1 credit F,S
Instruction in archery, badminton, and bowling for majors and minors in physical education.

262 TECHNIQUES FOR BASEBALL AND SOFTBALL (Men only) (0+3) 1 credit S
Instruction in baseball and softball for majors and minors in physical education.

263 TECHNIQUES FOR BASKETBALL (Men only) (0+3) 1 credit F,S
Instruction in basketball for majors and minors in physical education.

265 TECHNIQUES FOR FOOTBALL (Men only) (0+3) 1 credit S
Instruction in football for majors and minors in physical education.

266 TECHNIQUES FOR GOLF (0+3) 1 credit F,S
Instruction in golf for majors and minors in physical education.

267 TECHNIQUES FOR GYMNASTICS (0+3) 1 credit F,S
Instruction in gymnastics for majors and minors in physical education.

268 TECHNIQUES FOR INDOOR TEAM SPORTS (Women only) (0+3) 1 credit S
Instruction in indoor team sports for majors and minors in physical education.

269 TECHNIQUES FOR MODERN DANCE (1+2) 2 credits S
Instruction in modern dance for majors and minors in physical education.

270 TECHNIQUES OF TUMBLING AND FITNESS ACTIVITIES (0+3) 1 credit
Instruction in tumbling and fitness activities for majors and minors in physical education and elementary education.

271 TECHNIQUES FOR OUTDOOR TEAM SPORTS (Women only) (0+3) 1 credit F
Instruction in outdoor team sports for majors and minors in physical education.

272 TECHNIQUES FOR SOCCER, SPEEDBALL AND VOLLEYBALL (Men only) (0+3) 1 credit F
Instruction in soccer, speedball, and volleyball for majors and minors in physical education.

273 TECHNIQUES FOR TENNIS (0+3) 1 credit S
Instruction in tennis for majors and minors in physical education.

274 TECHNIQUES FOR TRACK AND FIELD (0+3) 1 credit S
Instruction in track and field for majors and minors in physical education.

275 TECHNIQUES FOR WRESTLING (Men only) (0+3) 1 credit S
Instruction in wrestling for majors and minors in physical education.

276 TECHNIQUES OF WATER SAFETY INSTRUCTION (1+2) 2 credits F,S SU
The Red Cross W.S.I. Course and pool supervision and maintenance. Prerequisite: a current Red Cross Life Saving Certificate.

277 TECHNIQUES OF SKI INSTRUCTION (1+2) 2 credits F
Techniques of ski instruction to American, Austrian, and French skiing systems. Teaching methodology and progressions. Finished technical forms of ski maneuvers. Ski mechanics and correction of errors.

278 TECHNIQUES OF BODY MECHANICS AND SOFTBALL (Women only) (0+3) 1 credit S
Instruction in softball and body mechanics for majors and minors in physical education.

279 TECHNIQUES OF ROCK CLIMBING (0+3) 1 credit
Instruction in rock climbing for majors and minors in physical education.

283 CHOREOGRAPHY (1+2) 2 credits F,S
Principles of composition in modern dance, including experience in movements development, design, form, and stage production.

290 PHYSICAL EDUCATION ACTIVITIES FOR PRIMARY GRADES K-3 (1+2) 2 credits
Extensive and intensive study of games, rhythms, stunts, and tumbling necessary for teaching physical education in grades K-3.

291 PHYSICAL EDUCATION ACTIVITIES FOR INTERMEDIATE GRADES, 4-6 (1+2) 2 credits
Extensive and intensive study of games, rhythms and dances, stunts, tumbling, and gymnastics necessary for teaching and program construction in physical education for grades 4-5-6.

292 DISASTER FIRST AID (1+2) 2 credits F,S
Standard and advanced Red Cross first aid emergency care for sick or injured in case of a disaster.

295 FIELD EXPERIENCES IN PHYSICAL EDUCATION (0+3) 1 credit
Directed field work experience in teaching and/or directing physical education activities for school or recreational groups. May not be taken more than three times.

310 TREATMENT OF ATHLETIC INJURIES (1+2) 2 credits F,S
The prevention and treatment of common athletic injuries. Practical application is practiced at varsity training quarters. Prerequisite: Med.S. 251.

312 ORGANIZATION AND JUDGING OF TRACK AND FIELD MEETS (0+2) 1 credit
Techniques involved in conducting track meets—methods of verifying track records. Prerequisite: P.Ed. 274.

321 THEORY OF FOOTBALL (2+0) 2 credits S
Lectures and practical demonstrations for those who may wish to coach or for those who are interested in and wish a more intimate knowledge of football.

322 THEORY OF BASKETBALL (2+0) 2 credits F
Lectures and practical demonstrations for those who may wish to coach or for those who are interested in and wish a more intimate knowledge of basketball.

325 OFFICIATING MAJOR SPORTS (2+0) 2 credits F
A careful study of the rules of major sports for men with interpretations, methods of officiating, and characteristics of officials.

326 THEORY OF TRACK AND FIELD ACTIVITIES (2+0) 2 credits F
Lectures on theory and practical demonstrations for those who wish to coach or receive a more intimate knowledge of track and field events.

327 TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOLS (2+0) 2 credits S SU
For the classroom teacher who handles the physical education classes. Curriculum planning, lesson plans and teaching methods are discussed.

328 PHYSICAL EDUCATION IN MIDDLE OR JUNIOR HIGH SCHOOLS (2+0) 2 credits
A survey of activities suitable for middle or junior high schools: Program planning, organization and evaluation.

329 THEORY OF BASEBALL (2+0) 2 credits S
Lectures on theory and practical demonstrations for those who wish to coach or receive a more intimate knowledge of baseball.

341 ADMINISTRATION AND ORGANIZATION OF ATHLETICS (2+0) 2 credits S
High school competition in general; methods of organizing athletic associations and administration of same.

354 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION (2+0) 2 credits F
Principles and methods of organizing and administering all aspects of the physical education program in secondary schools. Prerequisite: P.Ed. 201.

370 ADVANCED TECHNIQUES FOR PROFESSIONAL STUDENTS (0+3) 1 credit each semester F,S SU
Advanced work in physical education activities. Students assist in physical education activities classes. A written project required for graduate students. May not be taken more than three times.

372 METHODS OF TEACHING PHYSICAL EDUCATION (3+0) 3 credits
Selection, planning, conduct, and evaluation of learning experiences based on the purpose of physical education in schools. Assessment of effective teaching in physical education. Prerequisite: P.Ed. 201. (Same as S.Ed. 372.)

376 EXPERIENCES IN HISTORICAL DANCE FORMS I (1+2) 2 credits
A creative exploration of dance from primitive times to the court period as it relates to modern dance.

377 EXPERIENCES IN HISTORICAL DANCE FORMS II (1+2) 2 credits
A creative exploration of modern dance in relation to artistic trends of the Nineteenth and Twentieth centuries.

381 CAMPING AND OUTDOOR EDUCATION (1+2) 2 credits S
Current trends in practices and principles of camping in relation to education and the school curriculum. Campcraft skills, techniques of group work, program planning, and camp counseling.

390 KINESIOLOGY (3+0) 3 credits F,S
The mechanical and anatomical analysis of motion as a basis for the teaching and adaptation of physical education activities. Approved for but not limited to those majoring in the health sciences fields. Prerequisite: Med.S. 251, 252.

411 INSTRUCTOR'S FIRST AID (0+2) 1 credit S
Regular Red Cross course. Those completing the course may be designated first aid instructors. Prerequisite: advanced first aid.

430 PSYCHOLOGY OF COACHING (2+0) 2 credits S
The application of psychology to all forms of athletic activities. Illustrations of applied psychology collected and analyzed as to values in the relations to specific forms of athletics. Prerequisite: P.Ed. 201 plus 4 credits in theory of coaching.

440,740 RECREATION ADMINISTRATION (2+0) 2 credits F
A comprehensive study of recreation administration including community organization, promotion, reports, public relations, and leadership selection. Prerequisite: P.Ed. 201, 240 (4 credits) and 2 credits over 300.

447, 747 MOVEMENT EDUCATION FOR ELEMENTARY SCHOOL CHILDREN (1+2) 2 credits S SU
Problem solving approach to the teaching of motor skills to children. Prerequisite: 12 credits in physical education or elementary school teaching certificate.

450 MOTOR LEARNING (3+0) 3 credits
Motor-perceptual system processes, with special attention to skill acquisition and skill levels as categories of human learning.

452, 752 PHYSIOLOGY OF EXERCISE (3+0) 3 credits F S
Physiological changes in humans during physical exercise. Physiological bases for planning physical education programs. Observations of respiratory, circulatory, nervous, and metabolic adjustments to physical exercise. Approved for but not limited to those majoring in the health sciences fields. Prerequisite: Med.S. 251, 252.

453, 753 THERAPEUTIC ASPECTS OF MOVEMENT (3+0) 3 credits
Therapeutic exercises and adapted muscular activities to improve individuals with physical handicaps, tensions, or low muscular activity levels.

472, 772 LIFETIME SPORTS PROGRAM (2+2) 3 credits S SU
Comprehensive study of lifetime sports for all ages. Progressions, rules, purchase and maintenance of equipment, and analyses of skills. Prerequisite: skill or teaching experience in archery, golf, tennis, or badminton.

473, 773 WORKSHOP IN MODERN DANCE (1+2) 2 credits
Recent trends in modern dance techniques and compositions. May be repeated to a maximum of 4 credits.

474, 774 WOMEN'S COACHING AND OFFICIATING WORKSHOP (1+2) 2 credits SU
Instruction and participation in techniques of coaching women's sports and officiating. May be repeated to a maximum of 6 credits.

483, 783 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION (2+0) 2 credits F
Historical analysis of physical education within the context of forces which have affected its development. Philosophical bases and principles as guidelines for the profession. Prerequisite: P.Ed. 201 and 4 credits over 300 in physical education.

490, 790 EVALUATION IN PHYSICAL EDUCATION (1+2) 2 credits S
A study of tests used in physical education; methods of administering the testing program and of interpreting and reporting the data collected. Prerequisite: P.Ed. 201 and 4 credits over 300 in physical education.

492 COACHING CLINIC (2+0) 2 credits SU
Lectures and demonstrations in techniques of coaching major sports for men. May be repeated without limitation but a maximum of 4 credits are acceptable toward the satisfaction of any department, college, or University requirement. *S/U only*.

494, 794 SPECIAL PROBLEMS IN PHYSICAL EDUCATION (2+0) 2 credits
Current problems in physical education. Open to upper-division and graduate students only. May be repeated to a maximum of 4 credits. Prerequisite: 12 credits in physical education.

495 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. May be repeated to a maximum of 4 credits.

496, 796 FIELD STUDIES IN PHYSICAL EDUCATION 1 to 6 credits SU
Directed field work experience in observing physical education programs and facilities throughout the United States and in foreign countries. May be repeated to a maximum of 6 credits.

901 PHYSICAL EDUCATION SEMINAR 2 credits F,S SU
Intensive study and discussion of selected areas in physical education. May be repeated to a maximum of 4 credits. Prerequisite: 15 credits in physical education.

903 READINGS IN PHYSICAL EDUCATION AND RECREATION (1+0) 1 credit F,S SU
Designed to acquaint advanced students with recent professional literature in physical education and recreation. One conference period per week. May be repeated to a maximum of 2 credits. Prerequisite: 15 credits in physical education.

905 CRITICAL ISSUES IN PHYSICAL EDUCATION (2+0) 2 credits F SU
A re-examination of basic philosophies and objectives of physical education in relation to current societal needs.

909 CURRICULUM CONSTRUCTION IN PHYSICAL EDUCATION (2+0) 2 credits S SU
Social and physiological principles underlining the development of a physical education curriculum consistent with goals of secondary education. Prerequisite: major or minor in physical education.

930 PHYSIOLOGICAL BASES OF CONDITIONING PROGRAMS (2+0) 2 credits F SU
A 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: P.Ed. 452.

997 THESIS 1 to 6 credits F,S SU

Inactive Courses

101 ADAPTED PHYSICAL EDUCATION
108 CANOEING
134 SYNCHRONIZED SWIMMING
181 COMPETITIVE FIELD HOCKEY (0+TBA) 1 credit F
184 COMPETITIVE SWIMMING (0+TBA) 1 credit S
186 COMPETITIVE TRACK AND FIELD (0+TBA) 1 credit S
223 OFFICIATING WOMEN'S HOCKEY (0+3) 1 credit F
371 METHODS OF TEACHING DANCE (1+2) 2 credits F
375 METHODS OF TEACHING MODERN DANCE (1+2) 2 credits F SU
414, 714 ORGANIZATION AND JUDGING OF GYMNASTIC MEETS (2+0) 2 credits S SU
480, 780 HISTORY AND DEVELOPMENT OF THE DANCE (2+0) 2 credits S SU
990 ADVANCED KINESIOLOGY (2+0) 2 credits S

Physics (Phys.)[1]

Stated course prerequisites must be observed unless an equivalent preparation is approved by the department.

101-102 INTRODUCTORY PHYSICS (2+0) 2 credits each
An 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 INTRODUCTORY PHYSICS WITH LABORATORY (2+3) 3 credits each
Description is identical with Phys. 101-102, except that this course includes a laboratory with experimental work designed to illustrate fundamental physical principles. This course open only to students of the engineering technology program.

106 ENVIRONMENTAL SCIENCE (3+0) 3 credits
An 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
A 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
A 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.

117-118 METEOROLOGY (3+0) 3 credits each
Brief presentation of fundamental principles of weather observation, mapping and forecasting. Helpful to those planning to enter any branch of aviation. Also affords a solid foundation for more advanced work in meteorology. Knowledge of general physics is desirable. Phys. 118 is open only to those who have completed Phys. 117 or its equivalent.

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.

[1]Graduate courses numbered 600 to 699 are not applicable toward an advanced degree in physics.

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. 181.

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. 182.

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. 181-182.

204 ENGINEERING PHYSICS LABORATORY I (0+3) 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. 181.

205 ENGINEERING PHYSICS LABORATORY II (0+3) 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. 182.

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. 181-182.

600 numbered courses in physics may be taken by nonphysic majors providing prior permission is obtained from the department chairman.

311, 611 ENVIRONMENTAL PHYSICS: THE OCEANS AND ATMOSPHERE (3+0) 3 credits
An 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. 181 or Phys. 201, 202, 203.

351, 651 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, 652 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, 655 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, 656 ELECTRICAL MEASUREMENTS (1+3) 2 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
661-662 LIGHT AND PHYSICAL OPTICS (2+0) 2 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
663-664 OPTICS AND SPECTROSCOPY LABORATORY (0+3) 1 credit each
Basic optical measurements. Theory and use of spectrometers, spectrographs, and interferometers. Excitation and recording of emission spectra. Corequisite: Phys. 361-362.

411, 711 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. 221, 281.

421, 721 MODERN PHYSICS I (3+0) 3 credits
Introduction to relativity and quantum mechanics. Prerequisite: Phys. 203 or equivalent, differential equations. Advanced calculus desirable.

422, 722 MODERN PHYSICS II (3+0) 3 credits
Applications of relativity and quantum mechanics to atomic and nuclear structure. Prerequisite: Phys. 421.

423, 723 ATOMIC PHYSICS LABORATORY (0+3) 1 credit
Basic experiments and techniques in atomic physics, including electronic charge to mass ratio, photoelectric effect, magnetic resonance, Zeeman effect, atomic energy levels, and high vacuum techniques. Corequisite: Phys. 421.

424, 724 NUCLEAR PHYSICS LABORATORY (0+3) 1 credit
Characteristics and uses of gaseous ionization detectors, scintillation counters and, other nuclear instruments. Determination of physical characteristics of alpha, beta, and gamma rays. Half-life of some radioactive nuclei. Neutron capture cross sections. Corequisite: Phys. 422.

426, 726 INTRODUCTION TO SOLID STATE PHYSICS (3+0) 3 credits
A survey of the most important properties of solids, including crystal symmetries, lattice vibrations, conductivity, magnetism, transport phenomena, the free electron model, and band theory. Prerequisite: Phys. 421.

461, 761 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, 762 KINETIC THEORY AND STATISTICAL MECHANICS (2+0) 2 credits
Mean-free-path methods applied to diffusion, low-pressure flow, heat conduction, and other phenomena in gases. Transport theory of Maxwell, Boltzman, Chapman, Phase space, distribution functions, other elements of statistical mechanics. Prerequisite: general physics and calculus.

465, 765 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3+0) 3 credits
(See Phil. 465 for description.)

473-474
773-774 ELECTRICITY AND MAGNETISM (3+0) 3 credits each
Electrostatics, magnetic fields, and electromagnetism. Maxwell's equations, theory of metallic conduction, motion of charged particles, radiation. Prerequisite: general physics, differential equations.

483-484
783-784 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.

493-494
793-794 SPECIAL PROBLEMS Credit to be arranged
Laboratory or research work not specifically given in courses listed above.

901 MATHEMATICAL PHYSICS (3+0) 3 credits
Designed to acquaint the student with some of the specific mathematical preliminaries to advanced study of theoretical physics. Prerequisite: graduate standing in physics.

902 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. 901.

908 NUCLEAR PHYSICS (3+0) 3 credits
A study of Nuclear properties including forces, moments, and decay modes. Scattering, reactions, and nuclear models. Prerequisite: graduate standing in physics.

911 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.

912 ELECTROMAGNETIC THEORY II (3+0) 3 credits
Continuation of Phys. 911. Motions of charged particles in electromagnetic fields. Electromagnetic theory of radiation, electrodynamics, and special relativity. Reflections, refraction, and dispersion of electromagnetic waves.Prerequisite: Phys. 911.

921 QUANTUM THEORY I (3+0) 3 credits
Development of quantum theory. Schroedinger equation, operators, expectation values. Matrix formalism of Heisenberg, eigenvalue problems, wave packets, conjugate variables, and uncertainty principle. Solution of wave equation for square potentials, harmonic oscillator, and hydrogen-like atoms. Prerequisite: graduate standing in physics.

922 QUANTUM THEORY II (3+0) 3 credits
Peturbation theory, both time-independent and time-dependent. Degeneracy, interaction of matter with radiation, selection rules. Scattering theory. Born approximation and other approximation methods. Dirac notation and an introduction to spin. Prerequisite: Phys. 921.

931 ADVANCED THERMODYNAMICS (2+0) 2 credits
Classical thermodynamics treated from an advanced point of view. Introduction to modern developments including irreversible thermodynamics. Prerequisite: graduate standing in physics.

932 STATISTICAL MECHANICS (3+0) 3 credits
Ensembles, fluctuations and statistical basis of laws of thermodynamics. Distribution functions with application to cooperative phenomena, partition functions, and quantum statistics. Prerequisite: graduate standing in physics.

940 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. 901.

941 ATMOSPHERIC MOTIONS I (3+0) 3 credits
General circulation, meteorological analysis, hurricane, tropical, and extra tropical cyclones. Prerequisite or corequisite: Phys. 901 and 940.

942 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. 941.

943 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. 901 and 940.

945 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. 942.

948 MEASUREMENT IN THE ATMOSPHERE (3+3) 4 credits
The 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. 942 and 943.

949 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.

951-952 GRADUATE SEMINAR (1+0) 1 credit each
Recent developments in theoretical and experimental physics. May be repeated to a maximum of 6 credits.

961 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. 901-902, 921-922.

962 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. 961. Recommended: Phys. 911-912.

971-972 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, (j) 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. 901-902 or 911-912 or 921-922 or 901, 940.

977-978 ADVANCED SPECIAL PROBLEMS 1 to 6 credits
Special study of advanced topics not specifically in courses or seminars. Prerequisite: graduate standing in physics.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 12 credits
May be repeated to a maximum of 24 credits.

Inactive Courses

451-452, 751-752 ACOUSTICS (2+0) 2 credits each
944 UPPER ATMOSPHERE (3+0) 3 credits
953-954 PHYSICS RESEARCH SEMINAR (1 or 2+0) 1 or 2 credits
981 CONDENSED STATES OF MATTER I (SOLID STATE) (3+0) 3 credits
982 CONDENSED STATES OF MATTER II (LIQUIDS AND INTERFACES) (3+0) 3 credits

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

General

100 PRINCIPLES OF PLANT-SOIL-WATER RESOURCE USE (3+0) 3 credits F,S
Introduction to the plant, soil and water resources of the world. Use of these resources for the benefit of man.

216, 316, 416 INTERNSHIP (1 to 3+0) 1 to 3 credits F,S SU
Participation in 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. *S/U only.*

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in (a) bioclimatology, (b) crop science, (c) horticulture, (d) plant pathology, (e) soil science, (f) water science.

304, 604 PRINCIPLES OF PLANT PRODUCTION (3+0) 3 credits S
Principles underlying the creation and maintenance of a favorable environment for the efficient production of plants. Prerequisite: Biol. 202.

306, 606 PLANT PRODUCTION LABORATORY (0+3) 1 credit S
Greenhouse or laboratory problems relating to the production of plants. Identification of important horticultural and agronomic plants. Corequisite: P.S.W. 304.

400 UNDERGRADUATE SEMINAR (1+0) 1 credit F,S
Research work and reports on topics of interest in plant, soil, and water science. Prerequisite: senior standing.

406, 706 PLANT BREEDING (2+3) 3 credits S
Methods of plant breeding and their application to various crops. Prerequisite: Biol. 340. (Offered on demand.)

410, 710 ENVIRONMENTAL QUALITY AND AGRICULTURE (3+0) 3 credits
Agriculture as a source of pollution; effects of pollutants on agriculture; management techniques for minimizing pollution; use of agricultural systems for purification, utilization and disposal of agricultural, municipal, and industrial wastes. Prerequisite: senior standing.

480 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in: (a) Bioclimatology, (b) Crop science, (c) Horticulture, (d) Plant pathology, (e) Soil science, (f) Water science.

485, 785 SPECIAL TOPICS (1 to 3+0) 1 to 3 credits F,S SU
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. May be repeated to a maximum of 6 credits.

900 GRADUATE SEMINAR (1+0) 1 credit F,S
Research work and reports on topics of interest in plant, soil, and water science.

910 SELECTED TOPICS 1 to 3 credits F,S SU
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, (j) soil mineralogy, (k) weed science. May be elected more than once to pursue different studies.

911 RESEARCH METHODOLOGY (2+3) 3 credits F
Research principles applied to plant, soil, and water sciences. Research problem analysis, library materials, research equipment and procedures, data presentation.

912 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 Bot. 355, 356. (Offered on demand.)

980 INDIVIDUAL STUDY 1 to 3 credits F,S SU
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. May be repeated to a maximum of 6 credits in any area.

996 PROFESSIONAL PAPER 1 or 2 credits F,S SU
Required of all graduate students who wish to complete the Master of Science degree under Plan B.

997 THESIS 1 to 6 credits F,S SU
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, 631 BIOCLIMATOLOGY (2+3) 3 credits F
The 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.)

931 ADVANCED BIOCLIMATOLOGY (3+0) 3 credits S
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. 925.)

Crop Science

355, 655 FORAGE CROPS (2+0) 2 credits S
Physiological bases for management of forage crops. Quality and utilization of forages. Prerequisite: Biol. 202.

356, 656 WEEDS AND WEED CONTROL (2+3) 3 credits F
Principles and practices of weed control. Recognition of important weed species. Prerequisite: Biol. 101 and Chem. 142. (Offered in even numbered years.)

956 HERBICIDES AND PHYSIOLOGY OF HERBICIDAL ACTION (3+0) 3 credits
The chemistry of herbicides, their entry, and movement; action in plants and their fate in the environment. Prerequisite: Bot. 355, 356; P.S.W. 356.

Horticulture

161 PRINCIPALS OF TURF MANAGEMENT (2+3) 3 credits F
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 S
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.

164 HORTICULTURAL SCIENCE (3+0) 3 credits S
Introduction to horticulture, including a study of the basic principles of plant growth, reproduction, and utilization with special emphasis on demonstration techniques applicable to school instruction.

166 PARK MANAGEMENT AND ADMINISTRATION (3+0) 3 credits
Introduction to the organization, development, principles and policies of public park management and administration.

260 ORNAMENTAL PLANT MATERIALS (1+6) 3 credits S
Identification, horticultural characteristics, and use in landscaping of shrubs, trees, and ground covers. Prerequisite: Biol. 202 or P.S.W. 164.

261 PRODUCTION OF HORTICULTURAL MATERIALS (3+0) 3 credits F
Principles of commercial production of horticultural crops including fertilization, irrigation, insect and disease control, and mechanization. Prerequisite: Biol. 202, P.S.W. 101. (Offered in even numbered years.)

262 TURF MANAGEMENT PRACTICES (2+3) 3 credits
Construction, renovation, and management of both small lawns and park turf areas. Required field trips.

Plant Pathology

471, 771 PLANT PATHOLOGY (3+3) 4 credits F
Nature, cause, and control of plant diseases. Prerequisite: Biol. 202

472, 772 PLANT VIROLOGY (2+3) 3 credits S
Nature of viruses as plant pathogens; their chemical, physical, morphological, and serological properties. Prerequisite: P.S.W. 471, Chem. 235. (Offered on demand.)

974 PHYSIOLOGY OF PLANT PATHOGENIC ORGANISMS (2+6) 4 credits S
Growth, reproduction, respiration, and other physiological processes of bacteria and fungi pathogenic to plants. Prerequisite: P.S.W. 471, Chem. 235. (Offered on demand.)

Soil Science

120 SOILS AND SOIL MANAGEMENT (2+3) 3 credits S
Introduction to the nature and properties of soils, their formation 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 S
Physical, chemical, and biological properties of soils, soil genesis and classification, plant-soil-water relations. Prerequisite: Chem. 101.

325, 625 SOIL MORPHOLOGY AND CLASSIFICATION (2+3) 3 credits S
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, 627 SOIL FERTILITY AND MANAGEMENT (3+0) 3 credits F
Soil as a 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, 721 SOIL ANALYSIS (1+6) 3 credits
Methods of chemical analysis of soils, water, and plant tissue. Interpretation and correlation of analyses with crop response. Prerequisite: Chem. 330. (Offered on demand.)

422, 722 SOIL PHYSICS (2+3) 3 credits S
Physical properties of soil components; soil structure, temperature, aeration; soil-water interactions; methods of measurement; application to tillage and soil management. (Offered in even numbered years.)

920 ADVANCED SOIL PHYSICS (2+0) 2 credits
Fundamental principles underlying the physical behavior of soils with emphasis on modern concepts of water potential and flow. Prerequisite: P.S.W. 422, concurrent with Chem. 354. (Offered on demand.)

922 SOIL CHEMISTRY AND FERTILITY (3+0) 3 credits
Composition of soils; ion exchange and fixation; organic matter, biological transformations; soil acidity, alkalinity, salinity; nutrient availability; fertilizer reactions in soils; fertility management. Prerequisite: P.S.W. 327; Chem. 330; physical chemistry and biological chemistry recommended. (Offered on demand.)

926 IRRIGATED SOIL MANAGEMENT (2+0) 2 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 on demand.)

Water Science

344, 644 IRRIGATION PRINCIPLES AND PRACTICES (3+0 or 3) 3 or 4 credits S
Principles and practices underlying efficient use of water in irrigation, irrigation methods, land preparation, salinity, etc. Laboratory optional. Prerequisite: P.S.W. 222.

441, 741 HYDROLOGY FOR RESOURCE MANAGEMENT (3+0) 3 credits F
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, 744 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, 745 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, 746 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.)

Political Science (P.Sc.)

Baccalaureate and Advanced Degree Courses

General and Introductory

Prerequisite for all courses, except 103, is Political Science 104.

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 THE POLITICAL PROCESS (3+0) 3 credits
Political processes and the ways in which political decisions are made and implemented. Prerequisite: P.Sc. 103 or Hist. 101 or 111.

American Government and Politics

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.

208 AMERICAN STATE AND LOCAL GOVERNMENT (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
Students serve for approximately five months in a senator's or congressman's office in Washington, D.C. Regular written reports on work activities and readings are required. Prerequisite: junior standing. *S/U only.*

301 LEGISLATIVE INTERNSHIP (3+0) 3 credits
Students are assigned to work with a legislator during a regular session of the Nevada Legislature. Regular written reports on observations and work activities are required. Prerequisite: 45 college credits. May be repeated to a maximum of 6 credits. *S/U only*.

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
Development of the United States judicial system and its interrelationship with other agencies of government compared with the judicial systems of selected European countries. Prerequisite: P.Sc. 211.

310 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.

400, 700 THE SUPREME COURT AND CONTEMPORARY ISSUES (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, 704 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.

406, 706 URBAN POLITICS (3+0) 3 credits
Analysis of the politics and the political processes of urban-metropolitan areas. Special emphasis on the relationship between power structures and the politics of urban-metropolitan areas.

407, 707 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.

408, 708 POLITICS IN THE WESTERN STATES (3+0) 3 credits
Analysis of the political process in the western states with emphasis on the government system in Nevada and its comparison with the other western states. Prerequisite: P.Sc. 208. (Satisfies the legislative requirement for Nevada Constitution.)

409, 709 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, 751 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, 752 PRESSURE GROUPS AND POLITICAL MOVEMENTS (3+0) 3 credits
Structure, operation, tactics, and techniques of pressure groups. Nature, formation, and impact of political movements.

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. May be repeated to a maximum of 6 credits. Prerequisite: P.Sc. 205.

456, 756 PROBLEMS IN PUBLIC POLICY (3+0) 3 credits
Analysis of selected contemporary problems in public policy.

901 SEMINAR IN AMERICAN POLITICS (3+0) 3 credits
Exploration of selected approaches to American politics. Emphasis on analysis of problems. May be repeated to a maximum of 9 credits.

903 SEMINAR IN CONSTITUTIONAL LAW (3+0) 3 credits
May be repeated to a 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.

381 RESEARCH METHODS IN POLITICAL SCIENCE (3+0) 3 credits
Collection of materials, criticisms of data, and other techniques of research.

421, 721 POLITICAL ECONOMY (3+0) 3 credits
Examination of governmental policies as they are influenced by political theories and economic doctrines.

423, 723 CONTEMPORARY POLITICAL THEORY (3+0) 3 credits
Survey of theories linking political systems with socio-economic systems, e.g., politics in pre-industrial and industrial societies, totalitarianism and democracy related to industrialization, post-industrialization theories.

426, 726 AMERICAN POLITICAL THOUGHT (3+0) 3 credits
American political thought from the colonial period to the present including, among others, Puritanism, Republicanism, Jacksonian Democracy, Transcendantalism, Pragmatism, and Social Darwinism.

923 SEMINAR IN POLITICAL THEORY (3+0) 3 credits
May be repeated to a maximum of 9 credits.

926 SEMINAR IN AMERICAN POLITICAL THEORY (3+0) 3 credits

981 ADVANCED RESEARCH METHODS IN POLITICAL SCIENCE (3+0) 3 credits
Systematic examination of the scope and methods of political science inquiry for graduate study; major conceptions and issues of methodology in political science inquiry; present state of research in political science. Required of all graduate students in their first year of graduate study. May be repeated to a maximum of 6 credits.

Comparative Politics

211 COMPARATIVE POLITICS: DEVELOPED SYSTEMS (3+0) 3 credits
Analysis of political functions, structures, and processes in such areas as Western Europe and the Soviet Union.

212 COMPARATIVE POLITICS: DEVELOPING SYSTEMS (3+0) 3 credits
Analysis of political functions, structures, and processes in such areas as Asia, Africa, Latin America and the Middle East. Prerequisite: P.Sc. 103, 104.

411, 711 GOVERNMENT AND POLITICS IN WESTERN EUROPE (3+0) 3 credits
The political systems of the major Western European states and the social situations from which they have arisen.

412, 712 GOVERNMENT AND POLITICS IN AFRICA (3+0) 3 credits
Comparative analysis of the structures, processes, and historical development of African political systems. Prerequisite: P.Sc. 212.

415, 715 GOVERNMENT AND POLITICS IN LATIN AMERICA (3+0) 3 credits
Comparative study of the structure and dynamics of Latin America politics and government. Prerequisite: P.Sc. 212.

416, 716 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, 717 GOVERNMENT AND POLITICS IN ASIA (3+0) 3 credits
Analysis of political forces, systems, and processes in selected Asian states. Prerequisite: P.Sc. 212.

418, 718 PROBLEMS IN DEVELOPED POLITICAL SYSTEMS (3+0) 3 credits
Study of aspects of political life common to such areas as Europe, North America. May be repeated to a maximum of 6 credits.

911 SEMINAR IN COMPARATIVE POLITICS (3+0) 3 credits
May be repeated to a 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.

431, 731 COMPARATIVE STUDY OF FOREIGN POLICY (3+0) 3 credits
Study of 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, 732 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, 733 CONDUCT OF AMERICAN FOREIGN AFFAIRS (3+0) 3 credits
Study of the organization and administrative machinery involved in the conduct of American foreign affairs. Prerequisite: P.Sc. 231.

435, 735 INTERNATIONAL LAW (3+0) 3 credits
Survey of the law of nations interpreted and applied by the United States; rights and duties of states with respect to recognition, state succession, jurisdiction, nationality, aliens, extradition, consular and diplomatic relations, treaties, regulation of force, and pacific settlement of disputes. Prerequisite: P.Sc. 231.

436, 736 INTERNATIONAL ORGANIZATION (3+0) 3 credits
Origin, nature, and dynamics of international organization. Stress on regional and United Nations security functions, on multi-purpose and limited purpose organizations, and on conflict systems. Prerequisite: P.Sc. 231.

437, 737 INTERNATIONAL CONFLICT (3+0) 3 credits
A study of the classical and contemporary literature on the causes of war among nations and the conditions of international peace. Prerequisite: P.Sc. 231.

439, 739 PROBLEMS OF WORLD POLITICS (3+0) 3 credits
Analysis of selected contemporary problems of world politics. Prerequisite: P.Sc. 231. May be repeated to a maximum of 6 credits

931 SEMINAR IN INTERNATIONAL RELATIONS (3+0) 3 credits
May be repeated to a maximum of 9 credits.

Public Administration

341 ELEMENTS OF PUBLIC ADMINISTRATION (3+0) 3 credits
Principles and problems of public administration; the budget, forms of administrative action; types of control; administrative law.

441, 741 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, 742 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, 743 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, 744 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, 745 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.

450 PUBLIC SERVICE INTERNSHIP 1 to 6 credits
Students serve for varying lengths of time in a federal, state or local government office or with an agency or organization primarily concerned with the formulation or execution of governmental programs. Regular written reports on observations and activities are required. Prerequisite: P.Sc. 341. *S/U only.*

941 SEMINAR IN PUBLIC ADMINISTRATION (3+0) 3 credits
May be repeated to a maximum of 9 credits

Independent and Advanced Study

497-498
797-798 INDEPENDENT STUDY 1 to 3 credits each

910 ADVANCED STUDIES IN POLITICAL SCIENCE 1 to 3 credits
May be repeated to a maximum of 6 credits.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Inactive Courses

401-402 POLITICAL SCIENCE SYMPOSIUM (3+0) 3 credits each
419, 719 PROBLEMS OF DEVELOPING POLITICAL SYSTEMS (3+0) 3 credits

Psychology (Psy.)[1]

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.

[1]Graduate courses numbered 600 to 699 are not applicable toward an advanced degree in psychology.

203-204 ADVANCED GENERAL PSYCHOLOGY
(2+3) 3 credits each
Behavioral sciences including perception, motivation, and learning in 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.)

230 CRISIS INTERVENTION (3+0) 3 credits
(See S.Sv.C. 230 for description.)

231 PSYCHOLOGY OF ADOLESCENCE (2+0) 2 credits
Study of the characteristics prominent in the adolescent, with special emphasis upon applications to the work of the high school teacher. Prerequisite: Psy. 101.

233 CHILD PSYCHOLOGY (2+0) 2 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.)

275-276 HONORS STUDY AND RESEARCH
(1 to 3+0) 1 to 3 credits each
Independent study or research conducted under the supervision of a staff member. Prerequisite: admission to honors work in psychology and sophomore standing.

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 of a new problem. Open to freshmen and sophomores only. Prerequisite: Psy. 101 or Soc. 101.

301 EXPERIMENTAL PSYCHOLOGY (2+4) 4 credits
Lecture and laboratory course in the application of scientific methods to the study of behavior and mental processes. Prerequisite: Psy. 101.

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.

327, 627 COMPUTER APPLICATIONS IN THE SOCIAL SCIENCES (3+0) 3 credits
(See Soc. 327 for description.)

333 THE PSYCHOLOGY OF URBAN LIVING (3+0) 3 credits
Psychological features of the urban environment. The metropolitan experience is examined as a reflection of the issue of population growth and a setting of high and possibly stressful stimulation.

362, 662 SOCIAL PSYCHOLOGY II: GROUP STRUCTURE AND PROCESS (3+0) 3 credits
(See Soc. 362 for description.)

375-376 HONORS STUDY AND RESEARCH
(1 to 3+0) 1 to 3 credits each
Independent study or research conducted under the supervision of a staff member. Prerequisite: admission to honors work in psychology and junior standing.

392, 692 RESEARCH METHODS (3+0) 3 credits
(See Soc. 392 for description.)

403, 703 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, 705 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.

408, 708 HISTORY OF PSYCHOLOGY (3+0) 3 credits
Historical background of psychology in philosophy and physiology until 1880; various schools of psychological thought until midcentury. Prerequisite: Psy. 101.

410, 710 PHILOSOPHICAL CRITICISMS OF PSYCHOLOGICAL RESEARCH (3+0) 3 credits
Review of criticisms of psychological research made by philosophers in the tradition of ordinary language analysis. Prerequisite: Psy. 101.

421, 721 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.

431, 731 LEARNING, MEMORY AND COMPLEX PROCESSES
(3+0) 3 credits
Current developments in psychology of learning with major emphasis on human learning. Research in verbal learning, problem solving, concept formation, and thinking are considered. Prerequisite: Psy. 101.

435, 735 PERSONALITY (3+0) 3 credits
Survey of major theories of personality. Personality development, structure, and dynamics. Examination of major areas of research on personality. Prerequisit: Psy. 101.

436, 736 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 H.Scs. 436.)

441, 741 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. 741 not open to psychology majors.

444, 744 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. 233 or H.Ec. 331.

451, 751 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.

463, 763 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. 763 not open to psychology majors.

472, 772 EXPERIMENTAL ANALYSIS OF BEHAVIOR (3+0) 3 credits
A review of current research in the experimental analysis of behavior. Prerequisite: Psy. 101.

473, 773 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
A research investigation conducted and written in thesis form. Prerequisite: admission to departmental honors program in psychology and senior standing.

480, 780 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, 781 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 Zool. 481.)

499, 799 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. Prerequisite: senior or graduate standing.

Prerequisite for all following courses: admission to graduate standing in the Department of Psychology.

901 INDIVIDUAL READING 1 to 5 credits
Supervised reading with regular conferences between student and instructor. May be repeated to a maximum of 9 credits.

902 GRADUATE RESEARCH 1 to 5 credits
Research projects in psychology carried out under supervision. May be repeated to a maximum of 6 credits.

903 RESEARCH PRACTICUM (1 to 3+0) 1 to 3 credits
Research apprenticeship in ongoing research projects. Familiarization with aims and methods of psychological research.

904 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.

905 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.

906-907 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. 906-907.)

908 SEMINAR IN PHILOSOPHICAL PSYCHOLOGY (3+0) 3 credits
Selected topics in recent philosophical psychology. Prerequisite: Psy. 408. (Same as Phil. 908.)

910 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. 906-907.

911 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.

912 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.

918 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3+0) 3 credits
Theory construction and the application of research methods in social psychology. (Same as Soc. 918.)

920 SEMINAR IN SENSATION AND PERCEPTION (3+0) 3 credits
Experiments and problems in sensation and perception. Prerequisite: Psy. 303.

921 PROSEMINAR IN INTERPERSONAL TRANSACTIONS (3+0) 3 credits
Basic principles of human interaction and communication, including current communication theory and neo-Meadian approaches to interaction. (Same asSoc. 921.)

922 THEORIES IN SOCIAL PSYCHOLOGY (3+0) 3 credits
(See Soc. 922 for description.)

924 PROSEMINAR IN SMALL GROUP BEHAVIOR (3+0) 3 credits
(See Soc. 924 for description.)

926 PROSEMINAR IN THE INDIVIDUAL AND SOCIAL ORGANIZATION (3+0) 3 credits
Analysis of role strain, child and adult socialization, and private experience as a function of social organization. (Same as Soc. 926.)

927 PROSEMINAR IN INTRA-INDIVIDUAL SOCIAL PSYCHOLOGICAL PRINCIPLES (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. 927.)

930 SEMINAR IN MOTIVATION AND LEARNING (3+0) 3 credits
Contemporary theory and research in the areas of motivation, emotion, and learning. Prerequisite: Psy. 421.

931-932 CONTEMPORARY ISSUES IN PSYCHOLOGY (3+0) 3 credits each
A consideration in depth of selected topics of contemporary interest. May be repeated to a maximum of 6 credits each.

933 PROSEMINAR IN INTERGROUP RELATIONS (3+0) 3 credits
(See Soc. 933 for description.)

934 PROSEMINAR IN COLLECTIVE BEHAVIOR AND SOCIAL CONTROL (3+0) 3 credits
(See Soc. 934 for description.)

935 PROSEMINAR IN SOCIALIZATION (3+0) 3 credits
Principles, theories and research in human development and socialization with emphasis on the normal individual. Prerequisite: Psy. 204, 231, 233, or 444. (Same as Soc. 935.)

936 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.

937 SURVEY RESEARCH METHODS (3+0) 3 credits
(See Soc. 937 for description.)

938 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. 938.)

939 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.

941 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. May be repeated to a maximum of 15 credits. Prerequisite: enrollment in clinical program.

944-945 SEMINAR IN PERSONALITY (3+0) 3 credits each
Contemporary theory and research on personality. Recent trends and issues.

948 COMMUNITY PSYCHOLOGY (3+0) 3 credits
Mental health problems of populations, including psychological epidemiology and mental health needs of communities. Mental health consultation and education. Crisis intervention. Prerequisite: graduate standing in behavioral or health sciences.

949 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.

950-951 SEMINAR IN CLINICAL PSYCHOLOGY (3+0) 3 credits each F-S
A consideration of contemporary theory, research, and practices in the field of clinical psychology.

952 CLINICAL ORIENTATION (1+0) 1 credit
Roles and responsibilities of the clinical psychologist. Ethical problems and standards. Professional trends and issues. May be repeated to a maximum of 3 credits. Prerequisite: enrollment in clinical program.

954-955 THEORIES OF LEARNING (3+0) 3 credits each F-S
An examination of research on learning and of theories which attempt to explain the processes of learning. Prerequisite: Psy. 421.

957 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.

958 ADVANCED PSYCHOPHYSIOLOGY (3+0) 3 credits
Current developments and animal physiological research relating to general principles of sensation, perception, and behavior. Prerequisite: Psy. 403.

960 BEHAVIOR PROBLEMS I (3+0) 3 credits
Developmental and behavioral problems of children. Emotional disorders, mental retardation, learning difficulties, autism, and organic pathology. Prerequisite: Psy. 441 or equivalent and graduate standing in behavioral or health sciences.

961 BEHAVIOR PROBLEMS II (3+0) 3 credits
Survey of major psychological problems of adults, including alcoholism, drug abuse, marital discord, and behavior disorders. Prerequisite: Psy. 441 or equivalent and graduate standing in behavioral or health sciences.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Inactive Courses

107 PSYCHOLOGY OF MANAGEMENT (2+0) 2 credits
391, 691 INDUSTRIAL AND PERSONNEL PSYCHOLOGY (2+0) 2 credits

Renewable Natural Resources (R.N.R.)

All students taking a laboratory course in R.N.R. are charged $5 a course per semester.

100 CONCEPTS IN RENEWABLE NATURAL RESOURCES MANAGEMENT (3+0) 3 credits F
Scientific and managerial principles applied for forest, range, recreation, wildlife, and watershed resources. (Open to nonmajors. Freshmen R.N.R. majors are required to take R.N.R. 100 plus the 101 laboratory.)

101 RENEWABLE NATURAL RESOURCES LABORATORY (2+3) 1 credit F
Designed to acquaint students with field work and the application of principles. Contemporary case studies are used to explore problems and management concepts. (Optional for nonmajors. Required for freshmen R.N.R. majors.)

216, 316, 416 INTERNSHIP (1 to 3+0) 1 to 3 credits F,S SU
Participation in 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. *S/U only.*

221 PRINCIPLES OF WILDLIFE BIOLOGY AND MANAGEMENT (2+3) 3 credits F
History, philosophy, and current practices of wildlife biology and management. Emphasis on ecological principles and their application. Related lab and field exercises. Prerequisite: Biol. 201.

241 INTRODUCTION TO RANGE SCIENCE (2+3) 3 credits S
Elements of conservation, management, and multiple use of range resource. Prerequisite: Biol. 202.

271 WILDERNESS SURVIVAL (3+0) 3 credits F
Basic skills and concepts to survive under wilderness conditions, including attitude, fire building, shelters, terrain hazards, location and preparation of edible plants and animals, clothing, and equipment. The training and preparation necessary to make our mountain and desert wildlands an enjoyable recreation resource.

280 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range science, (d) recreation, (e) watershed management.

291 FUNDAMENTALS OF FOREST AND RANGE FIRE CONTROL (1+0) 1 credit
Basic skills and concepts of wildfire control, including practical knowledge of equipment, fire fighting tactics, and organization. Fire control teams are organized and actual fire fighting experience may be obtained on a voluntary basis. May be repeated to a maximum of 3 credits.

292 RESOURCE MAPS AND LAND MEASUREMENTS (2+3) 3 credits F,S
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. Prerequisite: trigonometry.

293 FOREST AND RANGE PLANTS (2+3) 3 credits F
Taxonomy, distribution and management implications of forest and range plants. Prerequisite: Biol 202.

301, 601 SILVICULTURE (3+3) 4 credits F
Foundations and practice of silviculture, including tree physiology, tree improvements, silvics, forest ecology, and control of forest establishment, composition and growth. Prerequisite: R.N.R. 293, Biol. 280.

302, 602 QUANTITATIVE RESOURCE ANALYSIS (4+3) 5 credits F
Statistical techniques used in quantifying renewable resources. Planning and execution of surveys, sampling systems, data analysis, and presentation. Prerequisite: Ag. 270, R.N.R. 100 and 292.

303, 603 FOREST PRODUCTS (2+3) 3 credits F
Introduction to wood anatomy; technological studies of major wood processing industries and wood product properties. Methods and costs of wood product fabrication. Prerequisite: R.N.R. 301, 302.

335, 635 CONSERVATION OF NATURAL RESOURCES (3+0) 3 credits F,S
(See Geog. 335, 635 for description.)

341, 641 PRINCIPLES OF RANGE MANAGEMENT (2+3) 3 credits S
Conservation, management, and multiple use of range resouces. Prerequisite: Biol. 201 or 202 or equivalent. (Offered in even numbered years.)

346, 646 RANGE RESOURCES FIELD TRIP 2 credits SU
A 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: Bot. 320 and 321 or R.N.R. 293.

348, 648 RANGE IMPROVEMENTS (2+3) 3 credits
Artificial revegetation, fencing, water development; manipulation of vegetation (controlling) mechanically, chemically, and by fire. Prerequisite: R.N.R. 341.

361, 661 WILDLAND RECREATION MANAGEMENT (3+0) 3 credits F
A consideration of wildland recreation resource management. Origin, development, and significance of public recreation areas. Emphasis is placed on the interrelationships between recreational land use and other natural resource functions. Prerequisite: R.N.R. 100.

362, 662 ADVANCED WILDLAND RECREATION MANAGEMENT (2+2) 3 credits S
Recreation area development, policy and administration. Studies include carrying capacity of resources, user preference, quality of developments and elements of design. Prerequisite: R.N.R. 361.

391 FIRE AND WILDLAND PROTECTION (2+3) 3 credits S
Forest and range fire suppression, use; including fire behavior physical effects, economics, and fire weather. Forest and range protection from and recognition of damage by fire, insects, diseases, weather, and mammals. Prerequisite: R.N.R. 292, Phys. 101 or equivalent.

401, 701 LOGGING SYSTEMS (2+6) 4 credits F
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. Prerequisite: R.N.R. 301, 302.

402, 702 FOREST MANAGEMENT (3+0) 3 credits F
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, 704 INTRODUCTION TO REMOTE SENSING (3+0) 3 credits S
(See Geol. 404 for description.)

420, 720 INTEGRATED NATURAL RESOURCE MANAGEMENT (2+3) 3 credits S
A 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. Prerequisite: senior standing.

421, 721 UPLAND GAME AND WATERFOWL MANAGEMENT (2+3) 3 credits F
Ecology and management of upland game and waterfowl. Prerequisite: Biol. 280, Zool. 335.

423, 723 FISHERIES MANAGEMENT (2+3) 3 credits S
Fish ecology, habitat requirements, distribution, and techniques as applied to modern gamefish management. Prerequisite: Biol. 280, Zool. 331, 332.

425, 725 BIG GAME MANAGEMENT (2+3) 3 credits F
Big game ranges and populations and their management. Prerequisite: Biol. 280, Zool. 337.

427, 727 FISH AND WILDLIFE HABITAT MANAGEMENT (2+3) 3 credits S
Cultural practices, including mechanical, chemical, and biological techniques to manipulate both aquatic and terrestrial and environments, meeting specific habitat objectives. Prerequisite: Biol. 280, R.N.R. 302.

441, 741 RANGE AGROSTOLOGY (1+6) 3 credits S
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: R.N.R. 293.

462, 762 NATURAL RESOURCES INTERPRETATION AND COMMUNICATION (2+3) 3 credits S
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. 280 or R.N.R./Geog. 335.

463, 763 RECREATION RESORCE SEMINAR (3+0) 3 credits S
Seminars on current professional problems and literature. Review and analysis of current recreation research and development. May be repeated to a maximum of 6 credits.

464, 764 RECREATIONAL LAND USE PLANNING (3+2) 4 credits F
The 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 behavorial survey methods. Prerequisite: R.N.R. 362 or equivalent.

480 INDEPENDENT STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range science, (d) recreation, (e) watershed management.

482, 782 WATERSHED MANAGEMENT (2+3) 3 credits F
Management of upland watershed for soil and water conservation. Use of mechanical and vegetative techniques and storage facilities in conservation practice. Prerequisite: P.S.W. 222; 441 recommended.

484, 784 WATERSHED ANALYSIS (3+0) 3 credits S
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. Prerequisite: R.N.R. 482. (Offered in alternate years.)

485, 785 SPECIAL TOPICS (1 to 3+0) 1 to 3 credits F,S SU
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. May be repeated to a maximum of 6 credits.

490, 790 SEMINAR ON ENVIRONMENTAL ISSUES (3+0) 3 credits F,S
Critical presentations and discussions of selected topics of interest to staff and students. (Same as Geog. 431-432.)

493, 793 RANGE AND FOREST ECOLOGY (2+3) 3 credits S
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. Prerequisite: Biol. 280 or equivalent.

494, 794 ADMINSTRATION AND POLICY (3+0) 3 credits S
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.)

936 PERSPECTIVES IN RENEWABLE NATURAL RESOURCES (3+0) 3 credits S
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. 936.)

980 INDIVIDUAL STUDY 1 to 3 credits F,S SU
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range science, (d) recreation, (e) watershed management. Prerequisite: graduate standing. May be repeated to a maximum of 6 credits in any area.

995 ADVANCED RESEARCH CONCEPTS (3+0) 3 credits F
Analysis of theories, techniques, and applications, drawn from any discipline that have present or potential utility in resource management.

996 PROFESSIONAL PAPER 1 or 2 credits F,S SU
Required of all graduate students who wish to complete the Master of Science degree under Plan B.

997 THESIS 1 to 6 credits F,S SU
Thesis may be written in area of (a) forestry, (b) wildlife management, (c) range science, (d) recreation, (e) watershed management.

Inactive Courses

403, 703 ADVANCED PRINCIPLES OF FOREST MENSURATION AND MANAGEMENT (2+3) 3 credits S
426, 726 GAME MAMMAL POPULATIONS (3+0) 3 credits S
465, 765 POLLUTION AND AESTHETIC VALUES (3+0) 3 credits F
496, 796 LEGAL PROBLEMS IN LAND AND WATER (3+0) 3 credits S
943 RANGE AND PASTURE LITERATURE 1 or 2 credits F
960 RANGE ECOSYSTEM ANALYSIS (1+3) 2 credits S
994 ECOLOGICAL IMPACT OF WATER RESOURCE PROJECTS (3+0) 3 credits S

School Administration

(See Education)

Secondary Education

(See Education)

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, crisis theory, effects of crises on the community, methods of and community resources for crisis intervention. Prerequisite: Psy. 101 or S.Sv.C. 101. (Same as Psy. 230.)

260 THE VOLUNTEER IN COURTS AND CORRECTIONS (4+0) 4 credits
(See C.J. 260 for description.)

280-281 COMMUNITY OBSERVATION (2+2) 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, 620 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.

330, 630 METHODS OF THE SOCIAL SERVICES I (3+0) 3 credits
Major techniques in case work with emphasis on interviewing and counseling in a social agency setting. Prerequisite: S.Sv.C. 220.

331, 631 METHODS OF THE SOCIAL SERVICES II (3+0) 3 credits
Group and community processes in meeting individual and community needs, including group work, community planning, organization, and action. Prerequisite: S.Sv.C. 220.

352 JUVENILE DELINQUENCY (3+0) 3 credits
(See Soc. 352 for description.)

360, 660 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, 668 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, 670 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, 672 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, 674 SOCIAL INTERVENTION IN ALCOHOL AND DRUG ABUSE (3+0) 3 credits
Identification, treatment, prevention, and control of drug addiction and alcoholism.

376, 676 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.

390 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.

450, 750 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+8) 4 credits each
A one-year course combining a two-hour seminar with approximately eight hours of field experience in an approved social or correctional agency under the supervision of an experienced agency worker. Prerequisite: S.Sv.C. 220 or 330. May be repeated to a maximum of 8 credits each. *S/U only.*

486, 786 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.

496 GROUP STUDY IN SOCIAL WELFARE 1 to 3 credits
Study of a special problem or problem area by several students together as members of a group. May be repeated to a maximum of 6 credits.

497, 797 SPECIAL PROBLEMS IN CORRECTIONS 1 to 3 credits
May be repeated to a maximum of 6 credits. Prerequisite: Soc. 366, 367 or S.Sv.C. 368.

498, 798 SPECIAL PROBLEMS IN SOCIAL SERVICES 1 to 3 credits
May be repeated to a maximum of 6 credits.

499, 799 INDIVIDUAL READING 1 to 3 credits
Supervised reading with regular conferences between student and instructor. May be repeated to a maximum of 6 credits.

Inactive Course

337, 637 VOCATIONAL REHABILITATION (2+0) 2 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
Sociological analysis of modern American society, its communities and institutions.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3+0) 3 credits
(See Anth. 205 for description.)

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
The study of sex roles, dating patterns, mate selection, marital interaction and success, and alternative forms of marriage and family life.

327, 627 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
Examination of institutionalized religious phenomena, including a study of individual and group belief structures (their development, perpetuation, and change). Prerequisite: Soc. 101.

342 SOCIAL STRATIFICATION (3+0) 3 credits
Major dimensions of status and power in modern society with emphasis on the social class structure of American society. 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. Psy. 662. Not open to psychology majors. (Same as Psy. 362.)

364 CONFORMITY AND DEVIATION (3+0) 3 credits
Systematic analysis of the sources of normative and nonnormative conduct. The nature and types of social deviation, their causes, description, and consequences. Prerequisite: Soc. 101.

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
Sociological theories and concepts brought to bear on various aspects of political theory and behavior. Prerequisite: Soc. 101.

376 THE COMMUNITY (3+0) 3 credits
Description and analysis of contemporary American communities. Emphasis on variation in community institutions and processes, as well as history and techniques of community studies. Prerequisite: Soc. 101.

379, 679 ETHNIC AND RACE RELATIONS (3+0) 3 credits
The social, psychological, economic, and political aspects of minority problems in American society. Prerequisite: Soc. 101. Not applicable toward an advanced degree in sociology.

380, 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.

384 POPULATION (3+0) 3 credits
Theories of population growth, composition, and distribution. Prerequisite: Soc. 101.

387 SOCIAL MOVEMENTS AND COLLECTIVE BEHAVIOR (3+0) 3 credits
Prominent theories of collective behavior and social change will be applied to important social movements, with an emphasis on contemporary movements. Prerequisite: Soc. 101.

391 SOCIOLOGY OF COMPLEX ORGANIZATIONS (3+0) 3 credits
Theory of complex organizations and the implications of social-psychological principles for dealing with recurrent problems in administrative organizations. 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 SOCIOLOGY OF WORK AND OCCUPATIONS (3+0) 3 credits
Includes analysis of large-scale organizations, professional and occupational groupings, and the impact of work activity on the individual. Prerequisite: Soc. 101.

401-402
701-702 ADVANCED GENERAL SOCIOLOGY (3+0) 3 credits
Intensive survey of major areas of sociology. Prerequisite: Soc. 101 or admission to honors program.

463, 763 SOCIAL PSYCHOLOGY III: SOCIAL PSYCHOLOGY OF EDUCATION (3+0) 3 credits
(See Psy. 463 for description.)

485, 785 SOCIOLOGY OF KNOWLEDGE (3+0) 3 credits
Studies the reciprocal influence of social structure on personal perception and values. Prerequisite: Soc. 101.

491, 791 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, 792 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.

497, 797 SPECIAL TOPICS IN SOCIOLOGY (3+0) 3 credits
Seminar on selected problems from the study of sociology. May be repeated to a maximum of 6 credits. Prerequisite: Soc. 101.

499, 799 SPECIAL PROBLEMS IN SOCIOLOGY 1 to 3 credits
May be repeated to a maximum of 6 credits

901 INDIVIDUAL READING 1 to 5 credits
Supervised reading with regular conferences between student and instructor. May be repated to a maximum of 6 credits.

902 GRADUATE RESEARCH 1 to 5 credits
Research projects in sociology carried out under supervision. May be repeated to a maximum of 6 credits.

904 SEMINAR IN SOCIAL ORGANIZATION (3+0) 3 credits
Consideration of selected topics in social organization.

905 SEMINAR IN SOCIAL THEORY (3+0) 3 credits
Consideration of selected topics on sociological theory.

906-907 INTERMEDIATE STATISTICS (3+0) 3 credits each
(See Psy. 906 for description.)

918 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3+0) 3 credits
(See Psy. 918 for description.)

921 PROSEMINAR IN INTERPERSONAL TRANSACTIONS (3+0) 3 credits
(See Psy. 921 for description.)

922 THEORIES IN SOCIAL PSYCHOLOGY (3+0) 3 credits
A review of the history of social psychology and its relationship to current theoretical approaches. A comparative analysis of contemporary theories is stressed. (Same as Psy. 922.)

924 PROSEMINAR IN SMALL GROUP BEHAVIOR (3+0) 3 credits
The structural properties and interaction processes which characterize small groups. (Same as Psy. 924.)

926 PROSEMINAR IN THE INDIVIDUAL AND SOCIAL ORGANIZATION (3+0) 3 credits
(See Psy. 926 for description.)

927 PROSEMINAR IN INTRA-INDIVIDUAL SOCIAL-PSYCHOLOGICAL PRINCIPLES (3+0) 3 credits
(See Psy. 927 for description.)

933 PROSEMINAR IN INTERGROUP RELATIONS (3+0) 3 credits
Social-psychological analysis of intergroup conflict with emphasis on natural settings. (Same as Psy. 933.)

934 PROSEMINAR IN COLLECTIVE BEHAVIOR AND SOCIAL CONTROL (3+0) 3 credits
Analysis of processes of social influences in the context of societal stability and change. (Same as Psy. 934.)

935 PROSEMINAR IN SOCIALIZATION (3+0) 3 credits
(See Psy. 935 for description.)

937 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. 937.)

938 METHODS AND INNOVATIONS IN ASSESSMENT (3+0) 3 credits
(See Psy. 938 for description.)

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits

Speech and Theatre (Sp.Th.)

Speech Communication

105-106, 205-206
305-306, 405-406 INTERCOLLEGIATE FORENSICS (1+0) 1 credit each
Participation in intercollegiate debate and individual events as a member of the traveling University of Nevada Debate Squad, plus participation in related on-campus events (one credit per semester.) Does not fulfill requirements for a major in speech and drama.

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.

229 PERSUASION (3+0) 3 credits
Study of oral persuasion in human affairs, its forms, strategies, and ethical concerns. Readings on theory plus in-class presentations.

230 SYMPOSIUM (2+3) 3 credits
In-class speech preparation on contemporary issues and frequent community speaking engagements.

315 SMALL GROUP COMMUNICATION (3+0) 3 credits
A study of speech communication in face-to-face and coacting groups. Analysis of group cohesiveness, leadership, role structure, information processing, and decision making.

317 CONTEMPORARY PUBLIC ARGUMENTATION (3+0) 3 credits
Analysis of contemporary argument in current affairs as practiced in public and legislative forums. Prerequisite: Sp.Th. 217.

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.

329 BUSINESS AND PROFESSIONAL SPEAKING (3+0) 3 credits
A study and practice of the principles of public speaking, conference methods, and group discussions which are applicable to the business and professional community.

410, 710 NONVERBAL COMMUNICATION (3+0) 3 credits
A study of the principles, implications and effects of nonverbal communication; the ways in which unspoken elements modify communication.

411, 711 INTERPERSONAL COMMUNICATION (3+0) 3 credits
An investigation into the role of interpersonal communication in human relations.

412, 712 INTERCULTURAL COMMUNICATION (3+0) 3 credits
Study of factors important to meaningful communication across cultures with emphasis on intercultural differences in North America.

414, 714 CLASSICAL RHETORICAL THEORY (3+0) 3 credits
An intensive study of the history and theory of Greek, Roman, and medieval rhetoric.

415, 715 AMERICAN PUBLIC ADDRESS (3+0) 3 credits
The history and criticism of public speaking in the U.S. from colonial times to the twentieth century.

416, 716 BRITISH PUBLIC ADDRESS (3+0) 3 credits
The history and criticism of public speaking and Parliamentary debate in England.

423, 723 MODERN RHETORICAL THEORY (3+0) 3 credits
Historical and critical study of rhetorical theories from the seventeenth century to the present with emphasis on contemporary theorists.

427, 727 THE RHETORIC OF PROTEST AND DISSENT (3+0) 3 credits
A critical analysis of the persuasive strategies of national and international revolutionary and reform movements.

428, 728 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, 733 COMPARATIVE THEORIES OF HUMAN COMMUNICATION (3+0) 3 credits
Review and comparative analysis of contemporary behavioral theories of human communication.

434, 734 COMMUNICATION: CONFLICT AND NEGOTIATION (3+0) 3 credits.
Study of the role of communication in conflict and negotiation with special emphasis on business, governmental, and educational organizations.

479 EVALUATION OF SPEECH COMMUNICATION BEHAVIOR (3+0) 3 credits
Principles and techniques of assessing speech communication behaviors. Focus is on empirical methods and instruments.

480, 780 COMMUNICATION TRAINING SYSTEMS: MANAGEMENT (3+0) 3 credits
Critical review of speech communication programs designed for in-service training of management personnel. Development of innovative learning-training systems.

481, 781 COMMUNICATION TRAINING SYSTEMS: SALES (3+0) 3 credits
Critical review of speech communication programs designed for in-service training of sales personnel. Development of innovative learning-training systems.

490 SPECIAL PROBLEMS IN SPEECH COMMUNICATION (3+0) 3 credits
Designed for students who wish to study in depth a particular area of general speech, rhetoric and public address, or communication theory. May be repeated to a maximum of 6 credits.

495-496, 497-498
795-796, 797-798 INDEPENDENT STUDY 1 credit each F-S
Open to juniors and seniors specializing in speech and drama. May be repeated to a maximum of 8 credits.

Radio and Television

240 INTRODUCTION TO RADIO AND TELEVISION (2+0) 2 credits
The functions of radio and television and their place in today's society.

242 RADIO AND TELEVISION SPEECH (2+3) 3 credits
Presentation of various types of radio and television speaking and dramatics (continuity, narration, commercial, interview, discussion, microphone, and camera techniques). Prerequisite: Spch. 240 and 259.

270 CONTROL ROOM OPERATION (2+3) 3 credits
The principles of control room operation including performance on the University radio station. Third Class FCC license required. Prerequisite: Sp.Th. 240.

280-281
380-381 BROADCAST PERFORMANCE (1+0) 1 credit each
Participation in radio and television production, preparation of programs for on-air broadcast. Prerequisite: Sp.Th. 240, 270. (1 credit per semester). These credits do not satisfy requirements for radio-television majors.

341 RADIO AND TELEVISION PRODUCTION I (3+0) 3 credits
Production techniques as applied to major program types, critical evaluation of programs, program patterns, audience analysis. Prerequisite: Sp.Th. 240.

342 RADIO AND TELEVISION PRODUCTION II (1+6) 3 credits
To include workshops in studio operation, staging, and lighting. Physical, acoustical, and mechanical theory of radio and television and its application. Prerequisite: Sp.Th. 341.

343 RADIO AND TELEVISION DIRECTION (3+0) 3 credits
Methods of radio and television direction. Problems of time, film, audience, music, casting, acoustics, space, etc. Prerequisite: Sp.Th. 342.

371 BROADCAST STATION OPERATION (4+0) 4 credits
Survey of broadcast station personnel, station organization, broadcast sales, operation of broadcast stations, and station relations with agencies, representatives and, other businesses.

440 SEMINAR IN RADIO AND TELEVISION (2+0) 2 credits
Integration of the fields of radio and television with special attention to current problems.

475, 775 BROADCASTING AND THE PUBLIC (3+0) 3 credits
Study of the principles and importance of broadcasting as a social, political, and cultural force with investigation of public opinion and propaganda. Prerequisite: Sp.Th. 240.

476, 776 PROFESSION OF BROADCASTING (3+0) 3 credits
Intensive investigation of the responsibility of the broadcaster in utilization of the public air waves to meet public tastes, interests, and needs. Prerequisite: Sp.Th. 240.

477, 777 EDUCATIONAL TELEVISION PRODUCTION (3+0) 3 credits
Study of the current trends in the uses of public broadcasting for educational and instructional purposes, including studio exercises, demonstration, and critical evaluation.

478, 778 WRITING FOR TELEVISION (3+0) 3 credits
Television writing techniques including theory and practice in the writing of all major continuity types. Prerequisite: Sp.Th. 240.

Theatre and Interpretation

103-203
303-403 NEVADA REPERTORY COMPANY 3 credit each
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 should enroll for the semester following his participation.

150-151
250-251 LABORATORY THEATRE: ACTING (2+3) 3 credits each
Lectures and discussion to provide fundamentals for the laboratory workshop.

200 INTRODUCTION TO THE THEATRE (3+0) 3 credits
Survey of drama and the art and craft of theatre. Study of representative plays. Lecture and discussion.

219-220 TECHNICAL THEATRE (1+6) 3 credits each
Introduction to all technical aspects of theatre production, including theory and practice in scenery, lighting, sound, and properties. Work on University productions required. Prerequisite: Sp.Th. 219 is prerequisite to 220.

221 INTERPRETATION (3+0) 3 credits
Oral interpretation of the forms of literature. Lectures and performance.

260 THEATRE SPEECH (3+0) 3 credits
Study of and practice in using the actor's voice. Prerequisite: S.P.A. 259.

301, 601 THEATRE WORKSHOP (0+6) 2 credits SU
Designed to give the student practical experience in all aspects of theatre production. Students participate in one production during the six-week summer session. Cannot be used as credit for speech and drama major but may be taken for elective credit.

321 ADVANCED INTERPRETATION (3+0) 3 credits each
Advanced techniques of oral expression. Prerequisite: Sp.Th. 221 and 259.

401, 701 READERS THEATRE (3+0) 3 credits
The preparation and performance of literary selections for a theatrical environment.

421 STAGE LIGHTING (1+3) 2 credits
Art of lighting design as interpreting the script through control of color relative to setting, actor, and audience. When possible, students design for actual production. Prerequisite: Sp.Th. 219 and 220.

422 SCENIC DESIGN (1+3) 2 credits
Art of scenic interpretation through play analysis; rendering, color, style, ground plans, construction plans; research in history of design and period styles. Design for actual production. Prerequisite: Sp.Th. 219 and 220.

424, 724 THEORIES AND STYLES OF ACTING (3+0) 3 credits
Study and practice of period acting styles from the dramatic literature of various eras.

431-432
731-732 CHILDREN'S THEATRE (1+3) 2 credits
A laboratory and conference course offering practical experience in operating a children's theatre.

450-451
750-751 LABORATORY THEATRE: DIRECTING (2+3) 3 credits each
Lectures and discussion to provide fundamentals for the laboratory workshop.

452-453
752-753 LABORATORY THEATRE: PLAYWRITING (2+3) 3 credits each
Lectures and discussion to provide fundamentals for the laboratory workshop.

471, 771 HISTORY OF THEATRE I (3+0) 3 credits
A study of the deveopment of theatrical art from its beginning to 1642.

472, 772 HISTORY OF THEATRE II (3+0) 3 credits
A study of the development of theatrical art from 1642 to the present.

473, 773 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. May be repeated to a maximum of 6 credits.

Speech Pathology and Audiology (S.P.A.)

109 SPEECH IMPROVEMENT (1+0) 1 credit
For those students who desire or need concentrated work directed to the improvement of speech production. May be repeated without credit.

259 PHONETICS (2+0) 2 credits
A 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.

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.

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 CORRECTION (0+3 or 6) 1 or 2 credits
Supervised clinic experience in the treatment and management of children and adults with speech and hearing defects. May be repeated six times. Prerequisite: S.P.A. 259, 357, 359, 360.

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, 759 SEMINAR IN CLINICAL PROCEDURE (2+0) 2 credits
Advanced study in specialized areas of the field. May be repeated to a maximum of 8 credits.

460, 760 MEDICAL AND SURGICAL 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, 761 ADVANCED SPEECH PATHOLOGY (2+0) 2 credits
The diagnosis of speech disorders, with special emphasis on stuttering and allied problems and organic speech disorders.

462, 762 DISORDERS OF VOICE (2+0) 2 credits
Cause and treatment of disorders of voice. Laryngoscopic techniques. Prerequisite: S.P.A. 359.

463, 763 EXTERNSHIP IN SPEECH PATHOLOGY AND AUDIOLOGY (0+3 or 6) 1 or 2 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, 764 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 and 365.

465, 765 MEDICAL AUDIOLOGY (3+0) 3 credits
Differential hearing tests and their interpretation from a medical and surgical viewpoint.

466, 766 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, 767 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.

468, 768 SEMINAR IN AUDIOLOGY (2+0) 2 credits F,S
Special topics: hearing aids, psychophysics of audition; current research and publications in clinical hearing measurement or rehabilitation.

920 INTRODUCTION TO GRADUATE STUDY (3+0) 3 credits
Research methods in the communicative arts and sciences.

921 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.

951 DYSPHASIA (2+3) 3 credits
Study of language and speech disorders related to central nervous system deficits.

952 SEMINAR IN STUTTERING (2+0) 2 credits
Study of disorders of speech rhythm.

953 SEMINAR IN ARTICULATION DISORDERS (2+0) 2 credits
Study of phonemic disorders

954 SEMINAR IN PHYSICAL ANOMALIES (2+0) 2 credits
Study of anatomical and neurological deficits of the speech mechanism.

957 EXPERIMENTAL PHONETICS (3+0) 3 credits
Speech production and reception and the physical characteristics of speech.

967 ADVANCED PRACTICUM (0+6) 2 credits
Supervised clinical experience in the treatment and management of children and adults with complex communicative disorders.

969a SEMINAR IN AUDIOLOGICAL MEASUREMENT (2+0) 2 credits
Special topics in the measurement of hearing, hearing aids, psychophysics of audition, and special tests.

994 WORKSHOPS AND INSTITUTES 1 or 2 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.

995 INDEPENDENT STUDY 1 to 3 credits

997 THESIS 1 to 6 credits

Zoology (Zool.)

103 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.

203 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.

223 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.

224 HUMAN ANATOMY AND PHYSIOLOGY II (2+3) 3 credits
The circulatory, respiratory, digestive, urogenital, and integumentary systems of man. Primarily for nursing, physical education, and home economics students. Prerequisite: Zool. 223, 225.

309, 609 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.

322, 622 PARASITOLOGY (3+3) 4 credits F
Introductory study of parasitic animals of medical, veterinary, and wildlife importance.

331, 631 ICHTHYOLOGY (2+0) 2 credits
Systematics, ecology, and biology of fishes. Prerequisite: Biol. 101 and 201.

332, 632 ICHTHYOLOGY LABORATORY (0+3) 1 credit
Optional laboratory to accompany Zool. 331. Prerequisite: Biol. 101, 201.

333, 633 HERPETOLOGY (2+0) 2 credits
Stystematics, ecology, and biology of amphibians and reptiles. Prerequisite: Biol 101 and 201.

334, 634 HERPETOLOGY LABORATORY (0+3) 1 credit
Optional course to accompany Zool. 333. Prerequisite: Biol. 101, 201.

335, 635 ORNITHOLOGY (2+4) 3 credits
Principles of avian biology with standard laboratory experiments and preparation of museum specimens. Collecting and ecological studies in the field. Prerequisite: Biol. 101.

337, 637 MAMMALOGY (2+4) 3 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.

338, 638 ADAPTATIONS FOR DESERT AND MONTANE LIFE (3+0) 3 credits
A study of the morphologic, physiologic, ecologic, and ethologic adaptations of animals living in deserts and mountains. Prerequisite: Biol 101 and 201.

341, 641 SURVEY OF INVERTEBRATES I (2+3) 3 credits
An extensive survey of the taxonomy, phylogeny, physiology, ecology, and behavior of the "lower" invertebrates. Prerequisite: Biol 101 or 201.

342, 642 SURVEY OF INVERTEBRATES II (2+3) 3 credits
An extensive survey of the taxonomy, phylogeny, physiology, ecology, and behavior of the "higher" invertebrates. Prerequisite: Biol. 101 or 201.

346, 646 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, Zool. 309.

347, 647 MAMMALIAN PHYSIOLOGY II (3+3) 4 credits
To follow Zool. 346. Physiology of respiration, the central nervous system, vision, hearing, digestion, metabolism, endocrinology, and reproduction. Prerequisite: Zool. 346.

350, 650 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: Zool. 346 or 347.

359, 659 GENERAL ENTOMOLOGY (2+0) 2 credits
Introduction to the principles of insect biology. Prerequisite: Biol. 101 or 201.

360, 660 GENERAL ENTOMOLOGY LABORATORY (0+6) 2 credits
Optional course to accompany Zool. 359. Prerequisite: Biol. 101 or 201.

361, 661 GENERAL ENTOMOLOGY COLLECTION (0+3) 1 credit
Optional field course to accompany Zool. 359. Prerequisite: Biol. 101 or 201.

364, 664 EMBRYOLOGY (3+3) 4 credits
The major concepts of animal development from gametogenesis through metamorphosis. The experimental approach is emphasized in the study of these principles. Prerequisite: three semesters of biology and one year of chemistry.

368, 668 COMPARATIVE HISTOLOGY (3+3) 4 credits
Comparative microscopic anatomy of vertebrate tissues and organs. Prerequisite: Biol. 101 or 201.

370, 670 HISTOLOGICAL TECHNIQUES (1+6) 3 credits
The 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.

381, 681 ANIMAL ECOLOGY (2+0) 2 credits
Fundamentals of autecology, synecology, and ecosystem ecology. Prerequisite: Biol. 101 or 201.

446, 746 COMPARATIVE PHYSIOLOGY (3+0) 3 credits
A comparative examination of the function of animal systems. Prerequisite: Chem. 142 or 244, Zool. 309.

447, 747 COMPARATIVE PHYSIOLOGY LABORATORY (0+3) 1 credit
Optional laboratory course to accompany Zool. 446.

451, 751 REPRODUCTIVE ENDOCRINOLOGY (3+3) 4 credits
Endocrine control over perpetuation of a species. Hormonal regulation of reproductive and maternal behavior, pregnancy, parturition, lactation, and development. Current and future birth control methods. Prerequisite: Zool. 350.

452, 752 NEUROENDOCRINOLOGY (3+3) 4 credits
An examination of the reciprocal relationship of the nervous and endocrine systems. Neurosecretory mechanisms, brain-pituitary-target gland reflex arcs. Behavior stress, and metabolic homeotosis. Prerequisite: Zool. 350.

470, 770 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.

481, 781 PRINCIPLES OF ANIMAL BEHAVIOR (3+0) 3 credits
(See Psy. 481 for description.)

485, 785 COMPARATIVE POPULATION ECOLOGY (3+0) 3 credits
Characteristics, dynamics, and behavior of animal populations. Prerequisite: Biol. 280.

491-492, 493-494
791-792, 793-794 ADVANCED ZOOLOGY 1 to 3 credits each
Special zoological problems for investigation and report. May be repeated to a maximum of 8 credits.

495-496
795-796 SEMINAR IN ZOOLOGY 1 or 2 credits each
Presentation by students of reviews and discussion of assigned reports of research in zoological literature. May be repeated for credit. Prerequisite: 9 credits of zoology.

903 VERTEBRATE REPRODUCTIVE BIOLOGY (3+0) 3 credits
Study of vertebrate reproduction at the systemic, organismal, and population levels. Individual projects; discussions. Prerequisite: a course in vertebrate zoology.

922 ZOOLOGICAL SYMBIOSIS (3+0) 3 credits
Physiological and ecological study of symbiotic relationships among animals.

935-936 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.

941 TOPICS IN INVERTEBRATE PHYSIOLOGY (3+0) 3 credits
Critical analysis of selected topics concerned with the physiologyof various invertebrate groups. Subjects considered depend upon student interest. May be repeated to a maximum of 6 credits. Prerequisite: Zool. 341 and 342.

950 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. May be repeated to a total of 6 credits. Prerequisite: Zool. 350.

951-952
953-954 GRADUATE PROBLEMS IN ZOOLOGY 1 to 3 credits each
Special zoological problems for graduate investigation and report. May be repeated to a maximum of 6 credits. Prerequisite: graduate standing.

955 EXPERIMENTAL ENDOCRINOLOGY (0+9) 3 credits
Student-designed laboratory experiments based on proposals developed in Zool. 950. Surgical procedures, gland histology, hormone extraction and purification, assay techniques, and hormone actions at the molecular level. Prerequisite: Zool. 950.

964 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.

966 UTERUS, PLACENTA AND FETUS (3+0) 3 credits
Study of the fetal-maternal association which exists during the intrauterine development of viviparous vertebrates. Prerequisite: graduate standing.

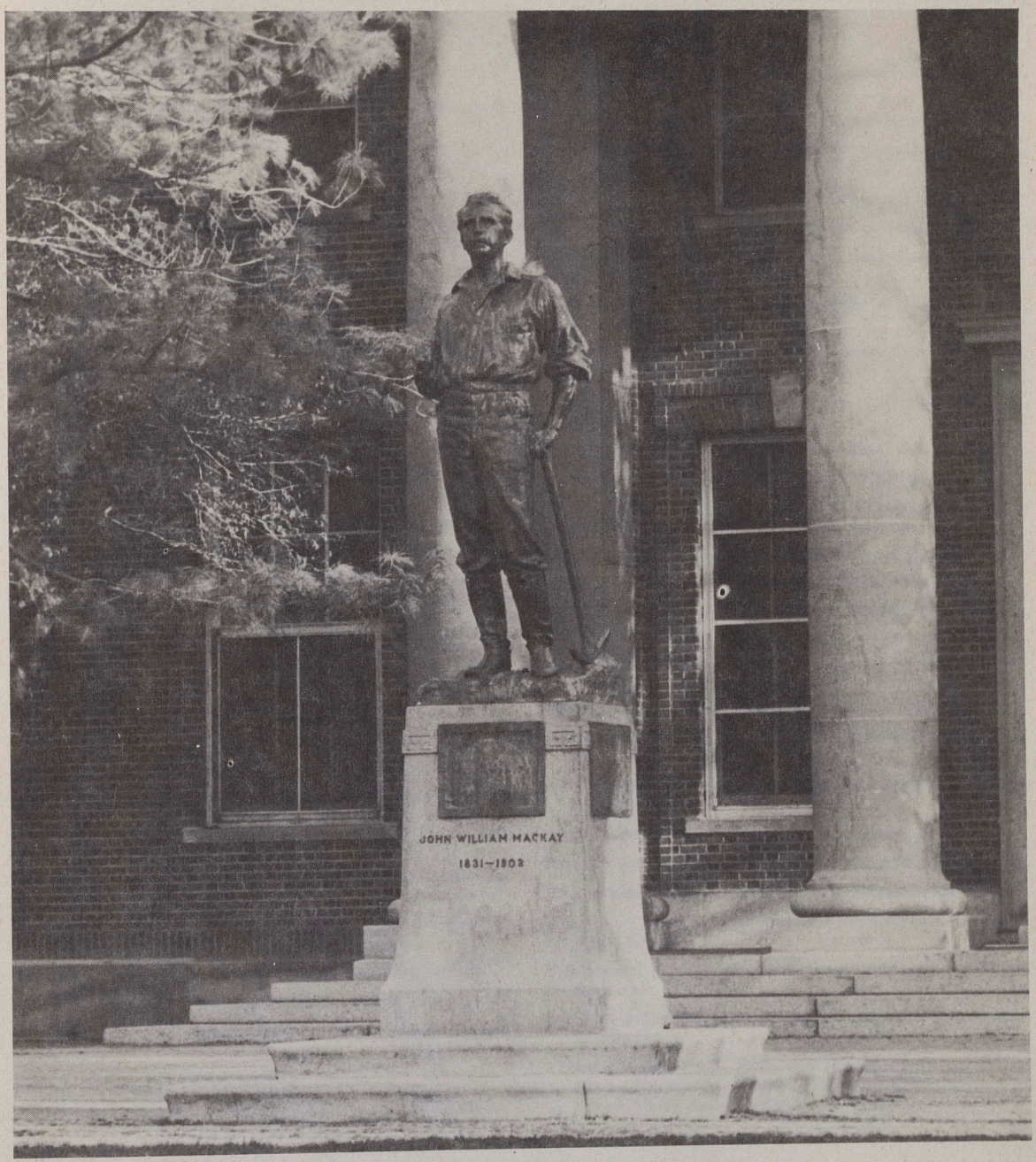
981 ADVANCED ANIMAL ECOLOGY (2+3) 3 credits
Selected topics in physiological, community, and ecosystem ecology in conjunction with related topics in bioenergetics. Prerequisite: Zool. 381 and Biol. 280 or the equivalent.

983 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: Zool. 483. Credit hours determined by department.

985 ADVANCED VERTEBRATE POPULATION ECOLOGY (2 or 3+0) 2 or 3 credits
Seminars and/or lectures in current problems of vertebrate population ecology. Emphasis on current literature. Prerequisite: Zool. 485. Credit hours determined by instructor.

997 THESIS 1 to 6 credits

999 DISSERTATION 1 to 24 credits



The University Faculty and Staff

1973 - 1974

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

Neil D. Humphrey, Ed.D.
B.S., Idaho State College, 1950; M.S., University of Denver, 1951; Ed.D., Brigham Young University, 1974. (1961-1968)

President, Reno Campus

James T. Anderson, Ph.D., P.E., Acting President
B.S., Michigan State College, 1943; M.S. 1948; D.I.C., Ph.D., University of London, 1952. (1963-1971)

Retired

Bernard A. Anderson, Ph.D., Professor of Speech, Emeritus.

Fred C. Batchelder, M.S., Extension Agent, Lyon County, Cooperative Extension Service.

Lena H. Berry, B.S., Home Agent, Churchill County, Emeritus.

Harold N. Brown, Ed.D., Professor of Education, Emeritus.

Thomas E. Buckman, M.S., Assistant Director for County Agent Work, Cooperative Extension Service, Emeritus.

John N. Butler, M.S., Professor of Metallurgy, Emeritus.

Howard H. Christensen, Ph.D., Associate Professor of Industrial Mechanics, Emeritus.

Alex DiC. Dandini, D.S.L., D.H.E., Ph.D., Professor of Foreign Languages, Emeritus.

Meryl William Deming, Ph.D., Professor of Chemistry, Emeritus.

Laraine E. Dunn, Ph.D., Associate Professor of Biochemistry and Soil Science, and Associate Research Chemist, 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.

Otto H. Haas, Ph.D., Professor of Paleontology, Emeritus.

Claude W. Hammond, Met.E., Associate Professor of Metallurgy, Emeritus.

Everett W. Harris, Ph.D., P.E., Professor of Mechanical Engineering, Emeritus.

Mabel L. Hartley, B.A., Assistant Agricultural and Resource Economist, Emeritus.

M. Gertrude Hayes, B.S., Home Agent, Washoe County, Emeritus.

Felton Hickman, M.A., Associate Professor of Music, Emeritus.

James Julian Hill, B.S. in L.S., Professor and Director of Libraries, Emeritus.

Edith J. Holmes, B.A., Order Librarian, 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.

Austin E. Jones, M.S., Research Associate in Seismology.

Lowell L. Jones, Ph.D., Associate Professor of Biology, Emeritus.

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.

Kenneth D. Loeffler, J.D., Associate Professor of Managerial Sciences.

Paul L. Maloney, B.S., Extension Agent at Large, Cooperative Extension Service, 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.

Christian W.F. Melz, Ph.D., Professor of Foreign Languages, Emeritus.

Mark W. Menke, B.S., Extension Agent, Elko County, Emeritus.

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Joe Eugene Moose, Ph.D., Professor of Chemistry; Dean of the Graduate School; Director of Research, Emeritus.

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Stanley G. Palmer, M.E., Sc.D., Dean of the College of Engineering and Professor, 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.

Jeanette Cameron Rhodes, B.A., Registrar, Emeritus.

Joseph H. Robertson, Ph.D., Professor of Range Ecology, Emeritus.

Ruth Irene Russell, Ph.D., Professor of Physical Education, 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.

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Mildred Swift, M.S., Professor of Home Economics, Emeritus.

Alice Terry, Secretary to the President and the Board of Regents, Emeritus.

Louis Titus, M.S., Professor of Agricultural Mechanics; Extension Engineer, Emeritus.

James R. Van Dyke, M.E., Professor of Mechanical Engineering, Emeritus.

Edward M. Vietti, Ph.D., Professor of Accounting and Information Systems, Emeritus.

Walter H. Voskuil, Ph.D., Distinguished Visiting Professor of Mineral Economics, Emeritus.

LeGrand Walker, M.S., Animal Scientist, Emeritus.

Milan J. Webster, Ph.D., Professor of Economics, Business and Sociology, Emeritus.

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Active

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Loren C. Belknap, Ph.D., Associate Professor of Social Services and Corrections.
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Philip C. Bettler, Ph.D., Professor of Physics.
B.A., University of Oklahoma, 1940; M.S., 1942; Ph.D., Oregon State College, 1959. (1961-1969)

Juan Bilbao, M.A., Basque Studies Bibliographer.
M.A., Columbia University, 1939. (1970)

Edward C. Bingler, Ph.D., Associate Mining Geologist, Nevada Bureau of Mines.
B.A., Lehigh University, 1959; M.S., New Mexico Institute of M & T, 1961; Ph.D., University of Texas, 1964. (1969)

John W. Bird, Ph.D., P.E., Lecturer in Civil Engineering.
B.C.E., University of Minnesota, 1956; M.S.C.E., 1964; Ph.D., University of Nevada, Reno, 1970. (1964-1970)

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B.S., Brigham Young University, 1965; M.S., University of Nevada, Reno, 1967; Ph.D., 1973. (1966-1973)

Clifton R. Blincoe, Ph.D., Professor of Biochemistry; Research Chemist.
B.S., University of Missouri, 1947; M.A., 1948; Ph.D., 1955. (1956-1969)

Richard Ray Blurton, Ph.D., Adjunct Associate Professor of Psychology.
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B.S., University of Wisconsin, 1962; M.S., 1964. (1964)

William W. Boggess, Jr., B.S., Captain, U.S. Army; Assistant Professor of Military Science.
B.S., Eastern Kentucky State College, 1964. (1972)

Verle R. Bohman, Ph.D., Professor of Animal Science; Animal Nutritionist, Experiment Station.
B.S., Utah State University, 1949; M.S., 1951; Ph.D., Cornell University, 1952. (1952-1963)

Dale W. Bohmont, Ph.D., Professor and Dean of the Max C. Fleischmann College of Agriculture; Director of Experiment Station and Cooperative Extension Service.
B.S., University of Wyoming, 1948; M.S., 1950; Ph.D., University of Nebraska, 1952; M.P.A., Harvard University, 1959. (1963)

John A. Bonell, M.S., P.E., Professor of Civil Engineering.
B.S., South Dakota State College, 1936; M.S., California Institute of Technology, 1938; P.E., South Dakota State College, 1950. (1949-1958)

Harold F. Bonham, Jr., M.S., Associate Mining Geologist, Nevada Bureau of Mines.
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Roscoe M. Booth, Ed.D., Associate Professor of Music.
B.A., University of Colorado, 1948; M.A., 1949; Ed.D., Colorado State College, 1964. (1965-1967)

Miriam Sandra Bourbon, M.S.N., Assistant Professor of Nursing.
B.S.N., University of Maryland, 1967; M.S.N., 1970. (1973)

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B.S., Montana School of Mines, 1939; Professional Degree, 1955; M.S., Massachusetts Institute of Technology, 1943; Ph.D., University of Kansas, 1956. (1962-1969)

Alex Boyd, M.Ed., Director, Upward Bound.
B.S., University of Nevada, Reno, 1970; M.Ed., 1972. (1972)

Darwin Bradfield, B.S., Area Extension Livestock Agent, Cooperative Extension Service.
B.S., Utah State University, 1947. (1962-1967)

Harry H. Bradley, Sr., B.S., Lecturer and Director of Community Development.
B.S., University of Nevada, 1940. (1967-1971)

Kenneth A. Braunstein, M.A., Associate Professor of Criminal Justice.
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Index

For general reference concerning degrees, requirements, and programs within specific colleges and schools, you are advised to refer to the Table of Contents. Students are advised to read carefully the rules and regulations which may affect them as they are listed in the various sections of this Catalog. All courses offered at the University of Nevada, Reno, are contained in the Course Listing section.

— A —

Abbreviations Used in Course Descriptions, 169
Absences, 56
Academic Distinction —
  at Graduation, 48
  Semester Honor Roll, 48
Academic Standards Regulations, 48
Accident Insurance, 52, 59
Accounting —
  and Information Systems, 115
  Courses, 171
Accounts Receivable Card, 54
Accreditation, 22, 113, 123
Activities Board, 67
Addition of Courses, 43
Administration of Student Conduct, 70
ADMISSION INFORMATION, 31
  Academic Requirements, 32
  Advanced Standing, 34
  Associate Degree Programs, 32
  Baccalaureate Programs, 33
  Foreign Students, 33
  General Requirements, 31
  Graduate Programs, 36, 159, 165
Advanced —
  Degrees, 46, 162, 164 (*also see* College and School sections)
  Standing, 34
Advertising, 97
Advisement, 41, 54
Advisory —
  Committee, 162
  Services, 55
Agricultural —
  and Resource Economics, 80, 85, 172
  Business, 81
  Experiment Station, 27
  Journalism, 80
  Marketing Technology, 79
  Mechanics, 79, 82
Agriculture —
  General, 80, 173
  Major, 80
AGRICULTURE, MAX C. FLEISCHMANN COLLEGE OF, 77
AGRICULTURE, SCHOOL OF, 77
Alcoholic Beverages, 69
Algebra, 226
Alumni Association, 23
American —
  College Test (ACT), 31
  Government and Politics, 247
Analysis Courses, 226
Animal Science, 81, 85, 173
Anthropology, 89, 174
Appealing —
  Disciplinary Decisons, 72
  Grades, 47
Application —
  Fee, 51
  for Admission, 31
  for Advanced Degree, 160, 162
  for Graduation, 45
  for Residence Halls, 58
Applied —
  Analysis Courses, 226
  Music, 101, 235
Army —
  Active Duty, 100
  Reserve, 100
Art, 90, 176
ARTS AND SCIENCE, COLLEGE OF, 87
Associate Degrees, 46 (*For details see* College and School sections)
Associated Students, 67
  Membership Fee, 51
Associated Women Students, 68
Athletics (*see* Physical Education)
Audiology, 111, 143, 146, 258
Audiovisual Communications Center, 25
Auditors, 44
  Fees, 52
Auxiliary Services, 13
Aviation Instruction, 27
Awards, 60, 65

— B —

Baccalaureate Degrees (*see* Undergraduate Degrees)
Basque Courses, 204
Behavioral Sciences, 143
Biochemistry, 85, 90, 178
Bioclimatology, 246
Biology, 90, 179
Biomedical Sciences, 143
Board and Room Charges, 53
Boards of Regents, 11
Botany, 91, 181
Bureau of —
  Business and Economic Research, 28
  Governmental Research, 28
  Mines and Geology, 28
Business Administration, 114, 120, 181
BUSINESS ADMINISTRATION, COLLEGE OF, 113

— C —

Cancellation of —
  Admission, 32
  Courses, 43
  Registration, 32
Capital Improvement Fee, 51
Categories of Students —
  Auditor, 44
  Nondegree, 44
  Regular, 44
CBAPE, 35
Cellular Biology, 91
Censure, 72
CENTENNIAL —
  Calendar, 14
  History, 15
Ceramics, 178
Change of —
  Address, 56
  Adviser, 43
  College, 43
  Major, 43
  Name, 43
Changing a Grade, 47
Chemical Engineering, 148, 181
Chemistry, 92, 182
Child Development and Family Life, 141
Civil —
  Defense Training, 26
  Engineering, 132, 184
  Engineering Technology, 186
Class Conduct, 48
Classification of —
  Punishments, 72
  Students, 44
CLEP, 35
Clinical Sciences, 143
Coed Residence Halls, 57
College —
  Board Advanced Placement Examination (CBAPE), 35
  Level Examination Program (CLEP), 35
  of Juvenile Justice, 29
  of the State Judiciary, 29
Committee on the Philosophy of Inquiry, 72, 187
Community Development, 26
Comparative Politics, 248
Composition and Communication, 200
Computing —
  Center, 28
  Courses, 197, 199, 221, 227, 234
  Science, 98, 227
Conduct Code, 68
Conferences and Institutes, 26
Congressional Intern Program, 105
Consolidated Fee for —
  Graduate Students, 52
  Undergraduate Students, 51
Constitution Course Requirements, 41
Cooperative Extension Service, 27
Counseling and Guidance, 128, 189
Counseling-Testing Services, 55, 56
Course —

Information, 169
Offerings, 171
Crafts Courses, 178
Credit —
by Examination, 35
Regulations, 45, 161
Requirements, 46
Crops and Soils Management, 82
Crop Science, 246

— D —

Data Processing (*see* Computing)
Deferred Payment —
Option, 62
Refunds, 54
Degrees Offered, 46, 162, 164 (*For details see* College and School sections)
Department Chairman, 12
DESERT RESEARCH INSTITUTE, 29
Determination of Grades, 47
Diploma Fee, 52
Disciplinary —
Censure, 72
Expulsion, 72
Probation, 72
Restitution, 72
Suspension, 72
Warning, 72
Disqualification, 49
Dissertation Regulations, 166
Distinction at Graduation, 48
Doctor of Philosophy Degrees (*see* Advanced Degrees)
Drawing Courses, 177
Dropping of Courses, 43
Dual Baccalaureate Degrees, 45

— E —

Early Admission, 32
Ecology, 91
Economics, 117, 121, 187
Education —
Courses, 189
Specialist, 128
Educational —
Foundations, 128, 190
Opportunities, 22, 59
Planning and Research Center, 128
Support and Communications, 143
EDUCATION, COLLEGE OF, 123
Electrical Engineering, 133, 197
Electronics Engineering Technology, 137, 199
Elementary —
Education, 128, 192
Teaching, 124, 126
Employment, 62
Engineering —
Courses, 200
Science, 133, 135
ENGINEERING, COLLEGE OF, 131
Engineering Technologies, 136
Electronics, 137
Design, 137
English B Fee, 52
English Language and Literature, 93, 200
Entomology, 203
Environmental Studies, 73, 203
Ethnic Studies, 73
Evaluation of —
Admission, 31
Military Training, 35
Evening and Off-Campus Programs, 26
Examinations, 47
Examining Committee, 162
Expenses (*see* Fees and Expenses)
Expulsion, 72
Extension, 35

— F —

Facilities, 25
Faculty Listing, 263
Farm and Ranch Management, 79
Fashion —
Merchandising, 141
Trades, 139
Federal Agencies, 28
FEES AND EXPENSES, 51
Fee Waivers, 54
Fellowships, 66
Filing Dates for Admission, 31
Final —
Examinations, 47
Grades, 47
Finance Control Board, 118
Financial —
Aid, 60
Calendar, 66
General Purposes, 60
Loans, 60
Qualifications, 60
Firearms, 69
Fire Service Training, 27
Fireworks, 69
Food —
and Nutrition, 141
Services, 58
Foreign —
Admissions, 32
Affairs, 105
Languages and Literature, 94, 204
Requirements, 94
Student Services, 54
Study, 75
Forestry, 83
Fraternities, 68
French, 95, 204
Freshman on Probation, 33

— G —

General —
Counseling, 55
Education Development Test (GED), 33
Music, 102
Psychology, 106, 107
General University Extension, 25
Geochemistry, 154
Geography (*see* Geology-Geography)
Geological Engineering, 152, 154
Geology-Geography, 150
Geography, 150, 209
Geology, 151, 154, 210
Geometry, 226
Geophysics, 152, 154
German, 95, 205
Governmental Research, 28
GPA Requirements for Freshman Admission, 34
Grade-Point —
Average, 48
Deficiency, 48
Grades and Examinations, 47
Graduate —
Admission, 160
Awards, 65
Courses, 161
Degrees (*see* Advanced Degrees)
Examinations, 165
Fellowships, 66
Placement, 67
Special, 159
Standing, 159
Teaching Fellowships, 65
GRADUATE SCHOOL, 159
Graduation —
Application, 45
Requirements, 45
with Honors, 48
Grants-in-Aid, 54, 61, 65
Group Counseling, 55

— H —

Health —
Education, 158
Fee, 51
Insurance, 52, 59
Services, 51
Health Sciences, 74, 213
History, 96, 213
History and Social Theory, 74
Home Economics —
Courses, 216
Communication, 141
Education, 141
in Business, 141
Minor, 142
HOME ECONOMICS, SARAH HAMILTON FLEISCHMANN SCHOOL OF, 139
Honor Roll, 48
Honors Study, 75, 219
Horticulture, 246
Housing —
General Policy, 57
Information, 57
Married Students, 58
Off-Campus, 58
Residence Halls, 57
Humanities, 219
Hydrology, 154

— I —

Inactive Courses, 171
Independent Study, 26, 35
Industrial Mechanics, 81, 82, 219
Information Systems, 116, 221
Intercampus Transfers, 37
INTERDISCIPLINARY AND SPECIAL PROGRAMS, 73
Interfraternity Council, 70
International Relations, 249
Italian, 206

— J —

Journalism, 96, 221
  Teaching, 97

— L —

Late Registration Fee, 52
Latin, 206
Law School Preparation (*see* Prelegal)
Learning and Resource Center, 128
Libraries, 25
Library Science, 98, 222
Linguistics, 93
Literature (*see* English Language and Literature; Foreign Languages and Literatures)
Loan Funds, 60, 61

— M —

Mail, 57
Management, 118
Managerial Sciences, 117, 233
Map, inside back cover
Married Student Housing, 58
Master of Education, 164
Master's Degrees (*see* Advanced Degrees)
Mathematical Education, 227
Mathematics, 98
  Computing Science, 98
  Courses, 225
  Technical, 228
Mathematics and Science Entrance Requirements, 131
Mechanical Design, 137
Mechanical Engineering, 134, 229
  Technology, 229
MEDICAL SCIENCES, SCHOOL OF, 143
  Courses, 231
Medical Technology, 145
Men's Housing, 58
Metallurgical Engineering, 148, 232
Midsemester Reports, 47
Military Science, 98, 233
  Deposit, 52
Military Training Evaluation, 35
MINES, MACKAY SCHOOL OF, 147
Mining Engineering, 155, 233
Miscellaneous Fees, 53
Music, 101
  Applied, 101, 235
  Education, 236
  General, 102, 234
  History and Literature, 101, 235
  Performance Organizations, 236
  Theory, 234

— N —

National —
  College of the State Judiciary, 29
  College of Juvenile Justice, 29
  Student Exchange Program, 75
Nevada —
  Bureau of Mines and Geology, 28, 147
  Mining Analytical Laboratory, 28, 147
Newspaper and Print Media, 97
Nondegree Students, 44
Nonresident Tuition, 39, 51
Nuclear Engineering, 136, 237
NURSING, ORVIS SCHOOL OF, 157

— O —

Off-Campus —
  Housing, 58
  Programs, 26
Office Administration, 116, 239
Officers and Staff, 11, 12
Organizational Communication, 110
Organizations, 68
Out-of-State Tuition Grants-in-Aid, 65

— P —

Painting Courses, 177
Panhellenic Council, 70
Parking Permits, 57
Parks and Turf Management, 79
Payment of Accounts, 51
Penalty for Late Registration, 41
Personal Checks, 54
Personnel Development, 27
Pest Control, 80, 86
Philosophy, 102, 239
Physical Education, 103
  Courses, 240
  with Emphasis on Dance, 103
Physics, 103, 243
Placement —
  Services, 67
  Tests, 31
Plant Pathology, 247
Plant Science, 83
Plant, Soil, and Water Science, 82, 86, 245
Police, 57
Political Science. 104, 247
Political Theory, 248
Portuguese, 207
Precedence of Courses, 42
Predental, 145
Prekindergarten Education, 140
Prelegal, 94, 96, 98, 102, 105, 107, 110, 113
Premedical, 145
Prepharmacy, 145
Prephysical Therapy, 158
Prerequisites, 171
Prescribed Courses in Arts and Science, 87
Preveterinary Science, 81
Printmaking Courses, 178
Prizes and Awards, 62
Probability and Statistics, 227
Probation, 48, 72
Professional —
  Counseling, 55
  Degrees, 148, 166
  Education, 125
Proscribed Conduct, 70
Psychology, 106, 249
Public —
  Address, 110
  Administration, 105, 249
  Relations, 97
  Service Division, 25
  Services, 13
  Works, 138

— R —

Radio and Television —
  Communications, 111
  Courses, 257
  Journalism, 97
Ranch Management, 79
Range Management, 84
Reading Study Center, 129
Readmission, 49
Recreation Area Management, 84
Refund of Fees, 53
REGISTRATION INFORMATION, 41
REGULATIONS FOR TUITION CHARGES, 39
Religious Studies, 75
Renewable Natural Resources, 83, 86, 252
Required Courses, 41, 42
Requirements for —
  Admission, 32
  Graduation, 45
  Readmission, 49
  Undergraduate Degrees, 46
Research —
  and Educational Planning, 128
  Divisions, 25
  Facilities, 25
  Services, 13
Residence Halls, 57, 70
Residence Requirements, 161, 162
Resident —
  Credit Requirements, 45, 162
  Fees, 31
  Status, 39
Restitution, 72
Rhetoric, 110
Room Charges, 53
ROTC (*see* Military Science)
Russian, 207

— S —

Satisfactory-Unsatisfactory Grading, 43, 158
Scholarships, 60, 62
School Administration and Supervision, 128, 194
Sculpture Courses, 177
Search and Seizure, 69
Secondary —
  Education, 125, 128, 195
  Teaching, 93, 95, 113, 124, 126
Selective Service, 100
Semester Honor Roll, 48
Shelter and Environment, 141
Social —
  Psychology, 106, 108
  Services and Corrections, 107, 254
Sociology, 108, 255
Soil —
  Management, 82
  Science, 82, 83, 86, 247
Sororities, 68
Spanish, 95, 207
Special —
  Education, 124, 126, 128, 192
  Examinations, 36
  Facilities, 25
  Instruction Fees, 52
  Programs, 23, 73
  Refund of Fees, 54
  Services, 59
Speech —
  and Theatre, 110, 257
  Communication, 110, 257
  Pathology and Audiology, 111, 143, 146, 258
Staff Listing, 263
State Agencies, 28
Student —
  Activities, 67
  Assistance, 59
  Categories, 44
  Classifications, 44
  Conduct Code, 69
  Employment, 62
  Expenses per Semester, 54
  Finances, 67
  Groups and Organizations, 68
  Health Service, 59
  Judicial Council, 68
  Loan Funds, 60
  Officers, 67
  Personnel Records, 56
  Publications, 67
  Testing Services, 56
  Union, 58
STUDENT PERSONNEL PROGRAM, 55
Study —
  Abroad, 75
  Facilities, 25
Summer Session, 10, 23
Supervised Teaching, 127
Suspension, 49, 72

— T —

Teacher Certification, 76, 123
Teaching Fellowships, 65
Teaching of English, 94
Television —
  Courses, 257
  Journalism, 97
  Theatre, 111
Testing Services, 56
Theatre, 110, 258
Thesis Requirements, 166
Topology, 226
Transcript of Record, 48
  Fee, 53
Transfer Within System, 37
Tuition, 39
Turf Management, 79

— U —

Undergraduate Degrees, 46 (*For details see* College and School sections)
Undergraduate Thesis, 47
Uniforms, 53, 101
UNIVERSITY —
  Accreditation, 22
  Calendar, 9, 10
  Faculty and Staff, 263
  General Information, 21
  History, 15, 21
  Officers, 11
  Police, 57
  System, 11, 21
  Terminology, 4, 5
Upward Bound, 59
USAFI, 35
Use of University Facilities, 69

— V —

Veterans' Benefits, 66
Violations of Law and Discipline, 70
Visual Arts —
  Communication Courses, 177
  Education Courses, 177
  History Courses, 176

— W —

Waivers, 54
Warning, 72
Water Science, 82, 86, 247
Watershed Management, 84
Western Interstate Commission for Higher Education, 76
Wildland Conservation, 84
Wildlife Management, 83
Withdrawal from the University, 43
Women's Housing, 58
Work-Study Program, 62

— Z —

Zoology, 91, 259

UNIV. 5-74

Reno Campus

55. Agriculture Mechanics
17. Anatomy Building
53. Anderson Health Sciences
38. Art Annex
3. Bookstore
10. Business Research
27. Central Heating Plant
34. Central Office Services
40. Chemistry Building
37. Church Fine Arts
8. Clark Administration
5. Dining Commons
44. Education Building
22. Fleischmann Agriculture
50. Fleischmann Atmospherium
24. Fleischmann Greenhouses
14. Fleischmann Home Economics
23. Fleischmann Life Science
7. Frandsen Humanities
31. Getchell Library
36. Gymnasium
43. Hartman Hall
3. Health Service
13. Home Management Residence
16. Human Development Laboratory
45. Judicial College Building
2. Juniper Hall (Dorm)
41. Lecture Building
32. Lincoln Hall (Dorm)
39. Mack Social Science
28. Mackay School of Mines
15. Mackay Science (Medical School)
49. Mackay Stadium
1. Manzanita Hall (Dorm)
12. Morrill Administration
51. Nevada Historical Society
35. Nye Hall (Dorm)
21. Orvis School of Nursing
25. Palmer Engineering
29. Physical Plant
42. Physics Building
54. Renewable Resources Center
30. Rifle Range
9. Ross Business Administration
26. Scrugham Engineering-Mines
18. Temporary Buildings
48. Tennis Courts
6. Thompson Student Services
4. Union, Jot Travis Student
47. University Village
46. U. S. Bureau of Mines
19. Veterinary Science
52. Water Resources
33. White Pine Hall (Dorm)

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