UNIVERSITY OF NEVADA RENO

1990-91 CATALOG

Agriculture

Arts and Science

Business

Education

Engineering

Human and Community Sciences

Journalism

Medicine

Mining

Nursing

Graduate Studies

Volume LXXXII

On the cover:
Ann Ronald (center), dean of the College of Arts and Science, talks with students Raymond Kwok and Coleen White in front of Thompson Student Services Center. Kwok is a junior at the university, majoring in music. He is from Las Vegas, Nevada, and serves as a student senator. White is from Pittsburgh, Pennsylvania. She is a junior, majoring in finance, and is the secretary of the student senate.

Contents

General Information

Where to write:

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

Where to Call: (area code 702)

General Information	784-INFO
Directory Assistance	784-1110
Academic Advisement Center	784-1537
Admissions and Records	784-6865
FAX number	784-4283
Affirmative Action Office	784-4300
ASUN Office	784-6589
Bookstore	784-6666
Campus Tours	784-4865
Career Development	784-4678
CARS Information	784-6865
Cashier	784-6915
Continuing Education	784-4851
Counseling Center	784-4648
Financial Aid	784-4666
Health Service	784-6598
Housing	784-6107
International Student Adviser	784-6874
Library Information	784-6508
Mediation Center	784-4177
Minority Student Affairs	784-4936
New Student Programs	784-6116
Orientation Information	784-6116
Parking	784-4654
Registration Information	784-6865
Scholarships and Awards	784-4666
Schools and Colleges (deans' offices)	
Agriculture	784-6611
Arts and Science	784-6155
Business Administration	784-4912
Continuing Education	784-4851
Education	784-6905
Engineering	784-6925
Graduate School	784-6869
Human and Community Sciences	784-6975
Journalism	784-6531
Medicine	784-6001
Mines	784-6987
Nursing	784-6841
Sierra Nevada Job Corps Center	677-3500
Special Programs and Academic Skills Center	784-6801
Student Employment	784-4666
Summer Session	784-4046
Testing Services	784-4638
Veterans Assistance	784-4664

Nevada residents outside the Reno/Sparks area can reach the University of Nevada, Reno toll-free by calling 1-800-622-4UNR.

Organization of the University

Board of Regents

Dorothy S. Gallagher (Chairman)	Elko
Carolyn M. Sparks (Vice-Chairman)	Las Vegas
Jill Derby	Gardnerville
V. James Eardley	Sparks
Joseph M. Foley	Las Vegas
Lonnie Hammargren	Las Vegas
Daniel J. Klaich	Reno
Sig Rogich	Las Vegas
June F. Whitley	North Las Vegas

University of Nevada System

Chancellor, Mark H. Dawson
Vice Chancellor for Finance, Ronald W. Sparks
Vice Chancellor for Academic Affairs, Warren H. Fox
Executive Director of Computing Services, Donald Zitter
Director of University Press, Thomas V. Radko
General Counsel, Donald F. Klasic
Secretary of Board of Regents, Mary Lou Moser

University of Nevada, Reno

President, Joseph N. Crowley, Ph.D.

Vice President for Academic Affairs, Vacant
Vice President for Development, Paul Page, Ph.D.
Vice President for Finance and Administration, Ashok K. Dhingra, M.B.A.
Vice President for Student Services, Patricia K. Miltenberger, Ed.D.
Affirmative Action Officer, David A. Torres, M.S.S.
Director of Intercollegiate Athletics and Head Football Coach, Christopher T. Ault, M.A.
University Marshal, Rollan Doyle Melton, B.S.

Vice President for Academic Affairs, Vacant

Assistant Vice President for Academic Affairs, William N. Cathey, Ph.D.

Associate Vice President for Research and Dean of Graduate School, Kenneth W. Hunter Jr., Ph.D.
Associate Dean, Vacant

Dean of Agriculture, Bernard M. Jones, Ph.D.
Associate Dean, Donald R. Hanks, D.V.M. (Interim)
Agricultural Economics, Rangesan Narayanan, Ph.D.
Agricultural Education and Communication, George C. Hill, Ph.D.
Animal Science, Duane L. Garner, Ph.D.
Biochemistry, Ronald C. Reitz, Ph.D. (Interim Chairman)
Plant Science, Jeffrey Seemann, Ph.D.
Range, Wildlife and Forestry, Gerald F. Gifford, Ph.D.
Veterinary Medicine, Donald R. Hanks, D.V.M.

Dean of Arts and Science, Ann Ronald, Ph.D.
Associate Dean, Richard A. Curry, Ph.D.
Anthropology, Robert L. Winzeler, Ph.D.
Art, Jim C. McCormick, M.A.
Biology, Peter Brussard, Ph.D.
Chemistry, Lawrence Scott, Ph.D.
Criminal Justice, Kenneth J. Peak, Ph.D.
English, Robert Merrill, Ph.D.
Foreign Languages and Literatures, Jorge N. Rojas, Ph.D.
Geography, Christopher Exline, Ph.D.
History, Wilbur S. Shepperson, Ph.D.
Mathematics, Robert N. Tompson, Ph.D.
Military Science, Norbert Czech, Lt. Col.
Music, Michael E. Cleveland, D.B.A.
Oral History, Robert T. King, Ph.D. (Head)
Philosophy, Piotr Hoffman, Ph.D.
Physics, E. Neal Moore, Ph.D.
Political Science, Richard L. Siegel, Ph.D.
Program for Adult Continuing Education (PACE), *Director,* Mary Stewart, Ph.D.
Psychology, Gerald P. Ginsburg, Ph.D.
Sociology, Carl W. Backman, Ph.D.
Speech and Theatre, David R. Seibert, Ph.D.

Dean of Business Administration, Laurie G. Larwood, Ph.D.
Accounting and Computer Information Systems, Robert E. Blatz Jr., J.D.
Economics, H. Michael Reed, Ph.D.
Managerial Sciences, Donald W. Winne, LL.B.-J.D.

Dean of Continuing Education, Neal A. Ferguson, Ph.D.
Director of Continuing Education, Patricia S. Andrew, M.S.
Director of International Programs and Services, Helen Lee Thomas, Ph.D.
Project Director of Sierra Nevada Job Corps Center, H. Randall Frost, Ph.D.

Dean of Education, Frank D. Meyers, Ed.D.
Counseling and Educational Psychology, Keith A. Pierce, Ed.D.
Curriculum and Instruction, Cleborne Maddux, Ph.D.
Center for Learning and Literacy, W. Shane Templeton, Ph.D.
Educational Leadership, George Foldesy, Ed.D.
Learning and Resource Center, Thomas Sawyer, M.Ed.
Research and Educational Planning Center, Deborah Loesch-Griffin, Ph.D.

Dean of Engineering, Jon A. Epps, Ph.D.
Assistant Dean, Walter K. Johnson, Ph.D.
Civil Engineering, Mehdi Saiidi, Ph.D.
Electrical Engineering and Computer Science, Banmali Rawat, Ph.D.
Mechanical Engineering, Richard Wirtz, Ph.D.

Dean of Human and Community Sciences, Elwood Miller, Ph.D. (Acting)
Community Health Sciences, Phyllis Reed, Ph.D.
Human Development and Family Studies, Vacant
Nutrition, Marsha Read, Ph.D.
Recreation, Physical Education and Dance, R. Keith Loper, M.S.
Social Work, Herbert Bisno, M.S.W.

Dean of Journalism, Travis B. Linn, M.A.

Dean of Medicine, Robert M. Daugherty Jr., M.D., Ph.D.
Associate Dean for Academic and Curricular Affairs, Joel H. Lanphear, Ph.D.
Associate Dean, Owen C. Peck, M.D. (Reno)
Associate Dean, Thomas J. Scully, M.D. (Reno)
Associate Dean, Thomas J. Cinque, M.D. (Las Vegas)
Assistant Dean for Research, Richard Simmonds, Ph.D.
Anatomy, Lawrence K. Schneider, Ph.D.
Biochemistry, Ronald C. Reitz, Ph.D. (Interim Chairman)
Clinical Laboratory Science, Kenneth T. Maehara, Ph.D.
Family and Community Medicine, George H. Hess, M.D.
Internal Medicine, Stanley R. Shane, M.D.
Microbiology, Thomas Kozel, Ph.D.
Obstetrics-Gynecology, Lawrence Kelly, M.D. (Acting)
Pathology and Laboratory Medicine, Anton P. Sohn, M.D.
Pediatrics, Jack Lazerson, M.D.
Pharmacology, David P. Westfall, Ph.D.
Physiology, Kenton M. Sanders, Ph.D.
Psychiatry and Behavioral Sciences, Ira Pauly, M.D.
Rural Health, Caroline Ford
Savitt Medical Library, Joan S. Zenan, M.L.S.
Speech Pathology and Audiology, Stephen C. McFarlane, Ph.D.
Student Health Services, Owen C. Peck, M.D., Director
Surgery, Alex G. Little, M.D.

Dean of Mines, Richard C. Bradt, Ph.D.
Chemical and Metallurgical Engineering, Ross W. Smith, Ph.D.
Geological Sciences, Lawrence T. Larson, Ph.D.
Mining Engineering, Vacant

Dean of Nursing, Sydney D. Krampitz, Ph.D.

Director of Instructional Media Services, Vacant

Dean of Libraries, Harold G. Morehouse, M.L.S.
Basque Studies Program, William A. Douglass, Ph.D.
Engineering Librarian, Glee Willis, M.L.S.
Assistant University Librarian for Administrative Services, Branch Libraries, Mary B. Ansari, M.L.S.
Assistant University Librarian for Bibliographic Control, Yoshiko T. Hendricks, M.L.S.
Assistant University Librarian for Collection Development, Milton T. Wolf, A.M.L.S.
Assistant University Librarian for Public Services, Steven D. Zink, M.L.S.
Head of Special Collections, Robert Blesse, M.A.
Assistant University Librarian for Systems, Access Services, Carol A. Parkhurst, M.L.S.
Life and Health Sciences, Physical Sciences Librarian, Susan L. Stewart, M.A.
Mines and Map Librarian, Linda P. Newman, M.L.S.

Vice President for Development, Paul Page, Ph.D.

Director of Alumni Relations and Records, Cecelia St. John, M.Ed.

Director of Communications, Suzanne M. McGovern, A.B.

Director of Development, (Vacant)

Director of Government Relations and Economic Development, Robert E. Dickens, Ph.D.

Director of Special Events, J. Terric Nault, M.A.

Executive Business Manager, *Dodd-Beals Fire Protection Training Academy,* Joe Dodd

University of Nevada, Reno Foundation Controller, Jenny C. Frayer, M.B.A.

Vice President for Finance and Administration, Ashok K. Dhingra, M.B.A.

Assistant Vice President and Controller, Thomas L. Judy, B.B.A.

Director of Business Affairs, Robert L. Harmon, M.B.A.

Director of Employee Relations and Benefits, (BCN), Robert D. Jeffers, M.Ed.

Director of Facilities Management, Brian J. Whalen, B.S.C.E.

Director of Financial Services, Daniel L. Pease, B.S.

Director of Lawlor Events Center, Richard T. Linio, B.A.

Director of Parking Services, Melody A. Bayfield

Director of Personnel Services, (BCN), Diana C. DeSimone, M.A.

Director of Personnel Services, (University of Nevada, Reno), Susan A. Carkeek, M.B.A.

Director of Physical Plant, Berger (Buzz) B. Nelson, B.S.E.E.

Director of Planning, Budget and Analysis, James R. Kidder, M.A.

Director of Printing Services, Michael A. Stovall, B.S.

Director of Purchasing, (BCN), Arthur L. Lenon, B.S.

Director of Real Estate, (BCN), Jim Jeffers Jr., B.A.

Facilities Service Coordinator, Gary R. Bishop, B.A.

Manager, The College Inn, Connie Vaia

Vice President for Student Services, Patricia K. Miltenberger, Ed.D.

Associate Dean, Director of Admissions, Registrar, Student Financial Services, and Outreach Services, Melisa N. Choroszy, Ph.D.
Associate Director of Admissions, Barry S. Davidson, Ed.D.
Associate Registrar, Charles V. Records, M.Ed.
Director, Student Financial Services, Alison C. Benson, M.Ed.
Director, Outreach Services, Edward L. Schoenberg, B.A.

Associate Dean, Student Development, David A. Hansen, Ed.D.
Acting Director for Career Development, Colette Dollarhide
Counseling Psychologist, Jack F. Clarke
Director of Academic Advising Services, Mark A. Osborne
Director of Academic Support Services, Vacant
Director of Upward Bound, Leonard Woods
Director of Women's Center, Helen Jones

Associate Dean, Student Life, John P. Marschall, Ph.D.
Director of Residential Life and Housing, Rodney L. Aeschlimann, M.Ed.
Director of Student Judicial Affairs and Greek Advisement, Sally Morgan, M.A.
Director of Student Union and Food Services, Fred L. Perriera, Ed.D.

Special Assistant to the Vice President and Director, Mediation Center, K.B. Rao, Ph.D.

ASUN Manager, Rita Laden, M.A.

Research and Public Service

Director of Business and Economic Research, David R. Seymour, Ph.D.

Director of Senator Alan Bible Center for Applied Research, Sandra Neese, Ph.D.

Director of Engineering Research and Development Center, Jon A. Epps, Ph.D. (Acting)
Associate Director, John A. Kleppe, Ph.D.

Director of Experiment Station and Cooperative Extension Service, Bernard M. Jones, Ph.D.
Associate Dean for Instruction and Associate Director, Cooperative Extension Service, Elwood L. Miller, Ph.D.
Assistant Director for Cooperative Extension, Kenneth S. Sakurada, M.S.

Director of Mackay Mineral Resources Research Institute, James L. Hendrix, Ph.D.

Director of Nevada Bureau of Mines and Geology, Jonathan G. Price, Ph.D.

Director, Center for Strategic Materials Research and Policy Study, Robert G. Horton, Ph.D.

Director of Cooperative Institute for Terrestrial Applications, Steven G. Wesnousky, Ph.D.

Director, Center for Neotectonics, Steven G. Wesnousky, Ph.D.

Director of Research and Educational Planning Center, Deborah Loesch-Griffin, Ph.D.

Director of Seismological Laboratory, James Brune, Ph.D.

Director of Small Business Development Center, Samuel Males III, M.B.A.

Affiliated Units

Dean of National Judicial College, William B. Lawless, J.D.

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

University Calendar

Fall Semester 1990

Final date for filing: application for admission; application for readmission following suspension; returning student application for registration materials; application for resident fees (if applicable)	Monday, July 2
Independence Day[1]	Wednesday, July 4
Semester begins[3]	Monday, August 20
Advisement for new and returning students	Tuesday-Thursday, August 21-23
Orientation and testing new students	Wednesday-Thursday, August 22-23
Registration	Thursday, August 23
Registration	Friday, August 24
Residence halls open	Sunday, August 26
Instruction begins	Monday, August 27
Labor Day[1]	Monday, September 3
Final date for late registration and addition of courses	Wednesday, September 5
Applications for graduation filed with Office of Admissions and Records	Monday, September 10
Final date for dropping courses or withdrawing without grades	Tuesday, October 9
Homecoming	Saturday, October 13
Final date for filing late application for graduation	Monday, October 15
Final date to drop courses if passing	Monday, October 22
Nevada Day[1]	Wednesday, October 31
Veterans Day[1]	Monday, November 12
Final date for filing graduate final oral examination reports	Wednesday, November 21
Thanksgiving Day[1]	Thursday, November 22
Family Day[1]	Friday, November 23
Final date for filing approved thesis or dissertation with Graduate School Office	Friday, November 30
Preparation for final week[2]	Wednesday, December 12
Final week schedule begins	Thursday, December 13
Instruction ends	Wednesday, December 19
Final grades filed with Office of Admissions and Records by 9 a.m. Semester ends[3]	Friday, December 21
Christmas Day/Holiday[1]	Tuesday, December 25

Spring Semester 1991

New Year's Day/Holiday[1]	Tuesday, January 1
Final date for filing: application for admission; application for readmission following suspension; returning student application for registration materials; application for resident fees (if applicable)	Wednesday, January 2
Semester begins	Monday, January 14
Martin Luther King Jr.'s Day[1]	Monday, January 21
Advisement for new and returning students	Tuesday-Thursday, January 15-17
Orientation and testing new students	Wednesday-Thursday, January 16-17
Registration	Thursday, January 17
Registration	Friday, January 18
Residence halls open	Monday, January 21
Instruction begins	Tuesday, January 22
Final date for late registration and addition of courses	Wednesday, January 30
Applications for graduation filed with Office of Admissions and Records	Monday, February 4
Final date for filing late application for graduation	Friday, February 15
President's Day[1]	Monday, February 18
Final date for dropping courses or withdrawing without grades	Monday, March 11
Final date to drop courses if passing	Monday, March 25
Spring recess[2]	Saturday-Sunday, March 30-April 7
Final date for filing graduate final oral examination reports	Monday, April 22
Mackay Week	Monday-Saturday, April 22-27
Final date for filing approved thesis or dissertation with Graduate School Office	Monday, April 29
Honors Convocation	Thursday, May 2
Preparation for final week[2]	Wednesday, May 8
Final week schedule begins	Thursday, May 9
Instruction ends	Wednesday, May 15
Final grades filed with Office of Admissions and Records by 9 a.m. Semester ends[3]	Friday, May 17
Commencement	Saturday, May 18
Memorial Day[1]	Monday, May 27
Independence Day[1]	Thutsday, July 4

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

1991 Summer Session

Registration for mini-term in Office of Admissions and Records — 8 a.m.-5 p.m.	Monday, May 13
Mini-term instruction begins; last day to receive a full refund	Monday, May 20
Registration for mini-term closes. Last day to add classes or change from audit to credit; letter grade to S/U, or S/U to letter grade — 5 p.m.	Tuesday, May 21
Last day to drop mini-term classes and receive a 50% refund	Wednesday, May 22
Last day to drop mini-term classes, change from credit to audit, or withdraw from the university without a grade being recorded	Friday, May 24
Memorial Day[1]	Monday, May 27
Application for August graduation due in Admissions and Records. Late fee applies after this date	Friday, May 31
Mini-term instruction ends. Registration for first- and second-terms in Lombardi Recreation Building	Friday, June 7
First-term instruction begins; last day to receive a full refund	Monday, June 10
Final grades for mini-term due in Office of Admissions and Records — 5 p.m.	Monday, June 10
Late registration for first-term closes. Last day to add classes or change from audit to credit; letter grade to S/U, or S/U to letter grade — 5 p.m.	Wednesday, June 12
Last day to drop first-term classes and receive a 50% refund	Friday, June 14
Final date for filing late application for August graduation	Monday, June 17
Last day to drop first-term classes, change from credit to audit, or withdraw from the university without a grade being recorded	Friday, June 21
Last day to drop a course, change from credit to audit, or withdraw from first-term if passing	Wednesday, June 26
Independence Day[1]	Thursday, July 4
First-term instruction ends. Registration for second-term continues in Office of Admissions and Records	Friday, July 12
Second-term instruction begins; last day to receive a full refund	Monday, July 15
Final grades for first-term due in Office of Admissions and Records — 5 p.m.	Monday, July 15
Late registration for second-term closes. Last day to add classes or change from audit to credit, letter grade to S/U, or S/U to letter grade — 5 p.m.	Wednesday, July 17
Last day to drop second-term classes and receive a 50% refund	Friday, July 19
Final date for filing graduate final oral examination reports	Friday, July 26
Last day to drop second-term classes, change from credit to audit, or withdraw from the university without a grade being recorded	Friday, July 26
Last day to drop a course, change from credit to audit, or withdraw from second-term if passing	Wednesday, July 31
Final date for filing approved thesis or dissertation with Graduate School Office	Friday, August 9
Second-term instruction ends	Thursday, August 15
Final grades for second-term due in Office of Admissions and Records — 5 p.m.; Summer Session ends	Friday, August 16

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

Legal Notice

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

Affirmative Action/Equal Opportunity

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

International Student Visas

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

1990

JAN

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

FEB

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

MAR

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

APR

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

MAY

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

JUNE

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

JULY

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

AUG

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

SEPT

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

OCT

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

NOV

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

DEC

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

1991

JAN

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

FEB

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

MAR

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

APR

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

MAY

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

JUNE

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

JULY

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

AUG

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

SEPT

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

OCT

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

NOV

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

DEC

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

University Terminology

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

University of Nevada, Reno

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

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

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

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

The University

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

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

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

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

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

The Campus

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

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

The City

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

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

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

History of the University

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

The University: Missions and Goals

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

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

Goals identified to support the mission statement include:

1. Continually improve the quality of teaching, research, and public service activities.
2. Develop a curriculum that is sensitive to change, but which places a special value on a liberal arts foundation.

3. Provide an institutional environment supportive of the internal quality of campus life.
4. Utilize resources efficiently and effectively through prioritized allocations and reallocations.
5. Develop the means to obtain funds from public and private sources that will provide the support required to achieve these goals.

Accreditation

The University of Nevada, Reno is accredited by the Commission on Colleges of the Northwest Association, an institutional accrediting body recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education. The university has been accredited since 1938. The most recent evaluation was completed in 1988.

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

Degrees and Majors

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

Specific degrees are listed in the registration section.

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

The majors offered are:

Agriculture: Agribusiness, agricultural education, animal science, biochemistry, integrated pest management,* resource management, textile and apparel merchandising, and veterinary science.

Arts and Science: Anthropology, art, atmospheric physics,* biology, botany, chemical physics, chemistry, computer science, criminal justice, English, foreign languages and literatures,* French, general studies, geography, German, history, international affairs, mathematics, music, music applied, music education, philosophy, physics, political science, psychology, public administration and policy,* recreation, social psychology, sociology, Spanish, speech communication, teaching of English,* teaching of English as a second language,* teaching of mathematics,* theatre, and zoology.

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

Education: Art, biological sciences, business education, chemistry, counseling and educational psychology,* educational leadership,* elementary education, elementary/special education, English, French, German, health education, history, industrial education, journalism, mathematics, music, physical education, physical sciences, physics, political science, recreation, secondary education, social studies, Spanish, special education,* speech communication, teaching of English as a second language,* theatre, and trade and industrial education.

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

Human and Community Sciences: Health education, human development and family studies, nutrition, physical education, predentistry, premedical, prephysical therapy, recreation, and social work.

Journalism: Journalism.

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

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

Nursing: Nursing.

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

Interdisciplinary and Special Programs

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

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

*Graduate majors only.

Commissioning Programs for the Military Services

The Reserve Officers Training Corps (ROTC) at the university provides an opportunity for men and women to earn a commission in the United States Army while completing baccalaureate degree requirements. Program information is contained in the Military Science Department section in this catalog. Additional information is available from the Department of Military Science, University of Nevada, Reno, NV 89557, (702) 784-6751.

Intercollegiate Athletics

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

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

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

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

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

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

University Research and Services

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

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

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

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

University of Nevada System

Computing Services

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

Physical facilities consist of regional centers in Reno and Las Vegas. A UNSCS computer network provides access from all UNS campuses to the following UNSCS computers: one IBM 3090 and one CDC Cyber 855 (primarily for administrative processing), two Sun 3/280S's, a Harris HCX-9, a CDC Cyber 830, a Digital VAX 11/750, and MicroVax. The UNSCS network also links various campus local area networks. Remote printing stations are located in the university Business Building, at CCCC, NNCC, TMCC, WNCC, and at DRI Stead. An IBM AS/400 is available at TMCC and connected by a line to the university Business Building. Many academic computing resources are provided by local campus departments and colleges.

In addition to access to the above-mentioned computers and a wide range of application software, UNSCS provides consultant assistance, documentation, workshops, a newsletter, and campus microcomputer laboratory. Information on accounts and services may be obtained by calling (702) 784-1131 or visiting the consulting office in room 302, Business Building.

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

University of Nevada Press

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

In addition to publishing books of general interest, the press is also the publisher of six distinguished series of books: the Max C. Fleischmann Series in Great Basin Natural History, a collection of works dealing with the flora, fauna, and natural resources of the region; the Basque Book Series, devoted to the study of Basque culture, history, and politics in America and Europe; the Vintage West Series, reprint editions of significant early titles; the History and Political Science Series, analytical studies of important political figures and topics; the Western Literature Series, devoted to analysis and revival of significant regional authors; and the Gambling Series, dealing with various aspects of the topic. The press also publishes occasional art portfolios of works by prominent Western artists.

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

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

University of Nevada, Reno

Academic Services

Campus Computing Services

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

International Programs and Services

The Office of International Programs and Services coordinates the campus resources directed toward international academic and service activities. Information is provided to students and faculty on study abroad and Fulbright scholar opportunities. The office serves as the liaison to agencies, governments, and institutions sponsoring international students at the university. Affiliations with universities and academic programs overseas are supported through this unit. Campus services for inbound international students are coordinated through the Office of International Programs and Services; the Intensive English Language Center and the university's International Division in Tokyo are administered directly through

this office. For more information, contact the director, Mackay Science, Room 130, (702) 784-1467, FAX (702) 784-4015.

European and Asian Studies

The university, through association with the Institute of European Studies, offers high quality academic programs of study at ten campuses abroad. Year programs are available in Vienna (Austria), Durham and London (England), Paris and Nantes (France), Freiburg (Germany), Milan (Italy), Madrid (Spain), Nagoya (Japan), and Singapore. Each institute center, except Durham, offers fall and spring semester programs. In addition, one-month summer programs are available in Freiburg, London, Madrid, Paris and Vienna.

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 for most programs, except Vienna and Singapore where classes are taught in English and Japan where one semester of Japanese is required. Programs of study must be approved by the student's adviser and the Office of International Programs and Services. Limited financial aid is available. Further information and application forms may be obtained from the Office of International Programs and Services, Mackay Science Building, Room 130, 784-1467.

Intensive English Language Center

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

The program is offered both fall and spring semesters as well as during Summer Session. The curriculum provides for 20 hours per week of instruction in facilities located on campus. Applicants must be 17 years of age or over and have completed the equivalent of a U.S. secondary school diploma.

Individuals approved for the program are issued appropriate immigration forms to attend on a student visa. Students who apply and qualify for admission to an academic program, and who do not meet the university's English language requirement, are issued immigration documents to attend the intensive English language program together with a conditional letter of acceptance to the appropriate academic program.

The Intensive English Language Center reserves the right to dismiss students who do not attend classes regularly.

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

International Division in Japan

The International Division in Tokyo, Japan offers a full intensive English language program which provides the same curriculum and teaching standards as the Intensive English Language Center on the University of Nevada, Reno campus. All instructors are native speakers of English and hold master's degrees in TESL or linguistics.

Students attending the Tokyo center are encouraged to participate in English language and academic programs on the University of Nevada, Reno campus.

For further information, contact the director of the Office of International Programs and Services, (702) 784-1467, or contact Kiyoshi Nagai, University of Nevada, Reno International Division, Izumi-Hamamatsucho Building 7F, 1-2-3 Hamamatasucho, Minato-ku, Tokyo 105 Japan. Tel.: (03) 459-5551.

The Study Abroad Resource Center

The Study Abroad Resource Center provides information about study abroad programs offered by the University of Nevada, Reno and other institutions throughout the United States. Foreign study is available for all students in all majors. Many programs feature courses taught in English; others offer intensive foreign language study as well as university courses taught in the language of the host country. The Study Abroad Resource Center provides: course catalogs for foreign universities, travel information, internship information, financial aid referrals, and counseling for students interested in studying abroad.

For more information, contact the office, Mackay Science Building, Room 130, (702) 784-1468.

Sierra Nevada Job Corps Center

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

Division of Continuing Education

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

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

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

Extension Academic Programs

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

Independent Study by Correspondence

Students who wish to pursue academic study but find they cannot attend regular classes or for other reasons choose to

study independently may enroll in courses offered by this department. Numerous college-level courses as well as a few noncredit courses are available through this program. Applications for enrollment in correspondence courses may be made at any time throughout the year. Students have one year in which to complete the course but may progress at their own pace with a minimum of restrictions. These courses may be taken for college credit and teacher certification. Correspondence courses may also be taken for advancement in vocation or for personal improvement. Most of the courses are approved by the Veterans Administration for those pursuing educational goals under this program.

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

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

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

Professional Development

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

Summer Session

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

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

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

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

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

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

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

In addition, the dean of Continuing Education has administrative responsibility for the Office of International Programs and Services and the Sierra Nevada Job Corps Center.

Instructional Media Services

Instructional Media Services (IMS) functions as the educational technology center for the entire campus. IMS activities fall into five major categories: (1) instructional design and faculty development—assistance in the design of both media materials and instructional techniques to solve particular instructional problems; (2) media design and production—development and production of computer graphic, photographic, audio, video, and print instructional materials for the classroom and research; (3) classroom services—distribution of all types of media equipment to campus classrooms, sale of media supplies, and assistance with the design and operation of technology in the classroom; (4) telecommunications—including operation of satellite programming feeds for campus, a campus-wide cable TV system for data and video, world-wide audio teleconferencing, a regional instructional television system, and a full service public radio affiliate; and (5) engineering—including assistance with the specification and purchase of campus media equipment, maintenance of all microcomputer and electronic media equipment on campus, design of state-of-the-art media technology systems, and design and maintenance of campus telecommunications systems.

A number of unique functions extend the reach of the campus throughout rural Nevada and beyond. These include: instructional television for students (ITFS), a system that broadcasts courses from university classrooms into remote classrooms located in Carson City, Minden/Gardnerville, and the outer reaches of Reno; UNITE, an audio teleconferencing system that allows dozens of individuals or groups in up to ten sites worldwide to meet and interact via telephone; the campus cable network, providing state-of-the-art distribution of satellite information, computer data, video, and graphics throughout the campus; and KUNR, providing national public radio and related audio services to the campus and community.

Libraries

The University of Nevada, Reno libraries strive to meet the diverse academic and research needs of the campus' faculty and students. The collection, housed in the Noble H. Getchell Library and six branch libraries, contains approximately 782,000 volumes, 2.5 million microforms and 5,977 current periodical titles. The library serves as a regional document and patent depository which receives virtually all available federal documents, many state documents, and publications from various international organizations, including the United Nations, OPEC and UNESCO.

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

Library services include online literature searches in over 300 databases, interlibrary loan, and instruction in the use of library resources through classroom lectures and library science courses. Also available within the library are an audiovisual learning laboratory, and a film and video library of over 4,800 items which serves the entire University of Nevada System.

WolfPAC, the library's online public access catalog, provides electronic access to much of the main and branch libraries' collections through terminals located throughout the libraries. Dialup access from other campus locations through the Cam-

pus Local Area Network is also possible. Library materials from Truckee Meadows Community College and Western Nevada Community College are included in WolfPAC.

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

College Service and Research

Nevada Experiment Station

The experiment station 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 experiment station's faculty have joint responsibility with cooperative extension or resident instruction programs in the College of Agriculture or College of Human and Community Sciences.

Federal funds are appropriated under the Hatch Act to promote the efficient production, marketing, distribution, and utilization of agricultural products and under the McIntire-Stennis Act to promote the development, protection, and utilization of resources from the nation's forest and rangelands. Station personnel conduct scientific investigations of wildland management as well as arid land agricultural practices to assist in the maintenance of a quality environment and a productive agriculture for the future through wise use of our natural resources. Research areas include: agribusiness, natural resources and environment, cellular and molecular biology, and human resource development.

Additional research programs are designed to protect consumer health and improve the well-being of Nevada residents' nutritional status as well as to promote community development through improvements involving recreation, environment, economic opportunity, and public services.

Research is conducted in the laboratories of the Max C. Fleischmann College of Agriculture, Howard Medical Sciences and the Sarah Fleischmann College of Human and Community Sciences facilities on the campus of the University of Nevada, Reno, as well as at four field laboratory sites including (1) Animal Research and Extension Center — Reno, (2) Valley Road — Reno, (3) Newlands — Fallon, (4) Gund Ranch — Beowawe.

Nevada Cooperative Extension

This educational outreach program provides information and instruction related to high priority needs and issues facing Nevada's citizens. Campus-based specialists work with field faculty located in four administrative areas and 14 counties. The faculty, working with community leaders, identify critical needs, plan and implement educational programs, and assess program success.

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

Extension programs are financed by an agreement between the U.S. Department of Agriculture, the state, and the counties, and are consistent with the provisions of federal and state laws relating to extension work.

College of Arts and Science

The Center for Advanced Study

Fellows: Blackadar, Mathematics; B.T. Gardner, Psychology; R. Allen Gardner, (Dir.) Psychology; W. Jacobsen, English; Lightner, Chemistry/Biochemistry; McReynolds, Psychology; Nickles, Philosophy; Scott, Chemistry; Shin, Chemistry; Vig, Biology.

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

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

Oral History

The Oral History Program (OHP) is principally a research and publication operation. Established in 1965, this statewide program produces printed primary-source oral histories that have enduring value as documentation of the history and culture of Nevada and the Great Basin. Research topics include (but are not confined to) mining, ranching, the development of casino gaming, politics and government, Great Basin Indians, and the experiences of various ethnic groups in the settlement and development of the West. The collection also includes a number of biographical chronicles.

The OHP's oral histories are derived from carefully-prepared, systematic interviews of people who can provide first-hand descriptions of events, people and places that are historically significant. From transcripts of the tape recordings, the program produces edited, indexed, half-tone-illustrated, bound volumes. These works reach a wide audience, and they are in steady use.

Tapes and master manuscripts of over 200 volumes of oral histories are housed in the OHP archives. Complete sets of this collection are also maintained by the university libraries in Reno and Las Vegas, cataloged and available to the public. Catalogs, master indexes to the collection, and copies of oral histories (or selected pages) may be acquired through the OHP office.

College of Business Administration

Bureau of Business and Economic Research

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

The Institute for the Study of Gambling and Commercial Gaming

The Institute for the Study of Gambling and Commercial Gaming is an organization whose mission is the stimulation of research and educational efforts relating to studies about gambling behavior and commercial gaming industries, and economic, business, social, and political effects of gambling on society. The institute is involved in the coordination of inter-

national conferences, sponsors the publication of books and professional journals, and aids in the development of degree and nondegree courses and programs related to gambling and commercial gaming.

Nevada Small Business Development Center

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

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

College of Education

Research and Educational Planning Center

The Research and Educational Planning Center (REPC) operates as the research arm of the College of Education. Several grant-funded projects are developed and implemented through REPC. Field-based activities include educational research, development, evaluation, staff and faculty development, and technical assistance.

The REPC works directly with educators in schools throughout the state of Nevada, the state department of education, and with faculty in the College of Education and in other university departments.

Assistantships and student-initiated activities provide opportunities for graduate students to conduct independent research, work with center-wide projects, and become involved in all aspects of educational research and program development.

College of Engineering

Engineering Research and Development Center

The Engineering Research and Development Center promotes and encourages interdisciplinary research and administers sponsored grants and contracts for the college. Through this facility students receive significant exposure to research which is conducted with funding from federal agencies, the state, industries, foundations and individual contributions.

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

College of Human and Community Sciences

Child and Family Research Center

The Child and Family Center, aligned with the Department of Human Development and Family Studies, is a research, teaching, and service facility involving children from birth through five years of age. Approximately 100 children per semester and their families are enrolled in the center which includes an infant, toddler, and three preschool classrooms. Students and faculty from across campus use the center for child and family research, utilize the observation facilities, and participate in practica.

Geriatric and Gerontology Center

Please refer to description under the School of Medicine in this section.

Health Career Advisement Center

In addition to seeking advice from their academic advisers, students planning a career in any of the health professions should consult with the director of the Center for Health Career Advisement. The office is a centralized resource for all university students interested in health careers. The director can assist students with information on the many career opportunities and options and the health-related degree programs available at the University of Nevada, Reno and other colleges. The office has up-to-date information about professional school admission requirements and applications for national admission testing. The director can be reached at 784-4939 or by visiting the office in the Sarah Fleischmann Building, Room 214.

Senator Alan Bible Center for Applied Research

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

1. As a center for stimulation of applied research by faculty and graduate students, with a facilitating role ranging from advice on project design to supervision of research projects;
2. As a publication outlet for studies concentrating on Nevada state and local issues, including the periodical, *Nevada Public Affairs Review;*
3. As a survey research center with a computer assisted telephone interviewing facility, designing and conducting surveys for faculty, the university, and state, local and community agencies and policy makers; and
4. As a liaison between the university, state and local governments, and business and industry, in projects utilizing the expertise of faculty within the college.

School of Medicine

Nevada Area Health Education Program (AHEC)

The Nevada AHEC program provides support services to health care providers in rural and other medically underserved areas of the state in an effort to improve retention and recruitment of health care professionals as well as the quality of care in those communities. The program works in cooperation with the School of Medicine and other health sciences programs within the university system and provides services throughout the state utilizing a main office based in Reno and center offices in Elko and Las Vegas.

Specific services provided by AHEC include coordination of medical students' first year preceptorships and fourth year rotations with physicians around the state. The preceptorship gives medical students their first clinical experience in which they can practice skills learned during the first year. The senior year rotation is a four-week stay with a rural family practice physician in which students gain skills in patient interviewing and diagnosis. In 1990, AHEC will begin a residency rotation in rural Nevada for internal medicine and family practice School

of Medicine residents. The program also offers field work experiences for health professions students in nursing, health education, nutrition, medical technology, and other areas.

In addition, the program operates a Learning Resource Center in cooperation with Northern Nevada Community College in Elko which serves as a resource to students and health professionals in rural Nevada. This center provides direct computer linkups with the National Library of Medicine, a portable computer database system, literature searches and interlibrary loans, patient education materials and self-study videotapes.

AHEC provides continuing education for a variety of health professionals throughout Nevada. These are designed to improve the quality of care and enable health care providers in rural areas to obtain necessary continuing education credits to maintain licensure.

AHEC also recruits students, primarily at the high school level, in rural and medically underserved areas of the state to go into all the health professions through a program that provides information, presentations, and work-study programs.

Geriatric and Gerontology Center

This program, sponsored jointly by the School of Medicine and the College of Human and Community Sciences (with close affiliations to the School of Nursing and the College of Arts and Sciences), provides a focus for teaching, research and community service in the area of aging. The center staff not only works with students and faculty from all disciplines but also with local, state and federal agencies. The major goals of this program are: (1) to develop and enrich education in geriatrics and gerontology; (2) to advance scientific knowledge about aging and the special problems of the aged; and (3) to improve health and social services for Nevada's elderly citizens.

The following are activities of the center designed to meet the above goals: (1) curricula on aging are reviewed with suggestions for appropriate changes; (2) faculty knowledge in geriatric/gerontology is enhanced; (3) lectures, seminars, courses and conferences on aging are presented to a diverse audience (undergraduate and graduate students, faculty, special groups/organizations, professionals and the public at large); (4) funding is secured through grants for work in various gerontologic areas such as caregiving and the health status of Native American elders; (5) educational resources in geriatrics and gerontology are identified and help is provided to students, faculty and interested others on how to access these resources; and (6) linkages are formed to stimulate research in aging (a number of past and present projects have emanated from center activities).

An interdisciplinary certificate program in gerontology for university undergraduates became effective in the fall of 1989. This program includes 12 hours of required subjects and 12 hours of electives. Details are available in the Geriatric and Gerontology Center office, 784-1689. The center is aligned closely with the Geriatric and Extended Care Program at the Reno Department of Veterans Affairs Medical Center which administers a teaching nursing home, a geriatric evaluation unit, consultation services, an outpatient clinic, respite care, rehabilitation for the disabled elderly and adult day health care. Clinical teaching in geriatrics for health profession students (medicine, nursing and others) is carried out at this facility.

Nutrition Education and Research Program (NERP)

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

NERP conducts clinical nutrition research and is conducting a five-year study to determine the effects of diet and weight on cardiovascular risk factors on 500 normal volunteers from the Reno community.

The research activities of NERP are jointly sponsored by the Nevada Experiment Station and are shared with the Nutrition Department of the College of Human and Community Sciences. A computerized Nutrient Data Base to support the analysis of dietary intake supports major research projects to help us understand the relationships of what we eat to disease risk.

Office of Rural Health

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

Medical Care

Craniofacial Pain and Temporomandibular Joint (TMJ) Dysfunction Clinic: This special clinic, housed at 834 Willow Street, provides diagnostic services for those patients suffering from craniofacial and TMJ problems. The clinic functions as a diagnostic center and referral service for physicians and dentists treating patients with head and facial pain.

The clinic is also a center for collecting research data on TMJ disorders and provides continuing education programs for Nevada physicians and dentists. The clinic director is Joseph R. McMullen, D.D.S., M.D., 322-0943

Ambulatory Care Centers: The centers listed below, staffed by School of Medicine faculty in Reno, offer the gamut of professional medical services: Internal Medicine, 781 Mill Street, 323-5263; V.A. Medical Center, 1000 Locust Street, 786-7200; Family Medicine Center, University of Nevada, Reno, Brigham Building, 784-1533; Pediatric Clinic, Family Medicine Center, University of Nevada, Reno, Brigham Building, 784-6180; Speech Pathology and Audiology, University of Nevada, Reno Mackay Science Building, 784-4887; and Nutrition, University of Nevada, Reno Brigham Building, 784-4474.

Mackay School of Mines

Center for Neotectonic Studies

The Center for Neotectonic Studies was established within Mackay School of Mines to coordinate research related to the evaluation of the geological environments which may affect land utilization. The center coordinates research related to

evaluation of seismic and volcanic hazards, ground water environments, slope stability and sub-surface disposal of hazardous or radioactive wastes. The director of the Center for Neotectonic Studies reports to the dean of the Mackay School of Mines.

Center for Strategic Materials Research and Policy Study

The Center for Strategic Materials Research and Policy Study was established within the Mackay School of Mines by congressional legislation in 1986. That legislation provided for a $9.6 million research facility, completed in 1989, and a $5 million facility for strategic materials policy study that will be completed in 1991. These major research facilities were funded out of a national concern for the availability of strategic materials to the industrial economy of the free world. Strategic materials are essential in the production of high-temperature alloys, steel and stainless steel, industrial and automotive catalysts, and solid state electronic components used in computers. Research in the center is focusing on improving domestic mineral production and metal processing of strategic materials, exploration for new domestic and free-world supplies of strategic materials, evaluation of substitutes for strategic materials, development of recycling technology and evaluation of existing laws and strategic materials policy.

Cooperative Institute for Aerospace Science and Terrestrial Applications (CIASTA)

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

Mackay Mineral Resources Research Institute

The Mackay Mineral Resources Research Institute was established as a research division of Mackay School of Mines. The institute was established under a program sponsored by the U.S. Bureau of Mines. In 1982 Mackay School of Mines was selected to be one of four national centers for research in mining. The Generic Center managed under the institute is concentrating on mined land waste reclamation and is coordinating the research efforts of four other institutions on this problem. Other programs within the institute include research in critical and strategic mineral resource appraisal, development of new exploration methodologies, and geothermal research and engineering. The director of the institute reports to the dean of the School of Mines.

Nevada Bureau of Mines and Geology

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

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

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

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

Seismological Laboratory

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

Financial and Administrative Services

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

Business Affairs

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

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

the University of Nevada, Reno, and Western Nevada Community College).

Central Services

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

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

The College Inn

The College Inn is a 156-room hotel/residence/conference facility, with full food service capabilities, located immediately adjacent to the University of Nevada, Reno campus. The College Inn was secured by the university through a grant from the Fleischmann Foundation. It serves adult continuing education programs offered by the university, the National Judicial College and the National Council of Juvenile and Family Court Judges, and all other organizations, faculty, and staff of the University of Nevada System. The College Inn may be used, at a reduced rate, for both business and personal needs. For additional information, call 323-0321.

Employee Relations and Benefits

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

Personnel Services

University of Nevada, Reno Personnel Services processes all personnel-related documents and maintains the official employee records for all university faculty. The ultimate responsibility for the academic program, however, lies with the vice president for academic affairs. The Business Center North Personnel Services office is responsible for processing all personnel-related documents and maintaining the official employee records for all classified employees. Both offices are located in the Artemesia Buidling.

Postal Services

A branch of the U.S. Postal Service (University Station) is located on the university campus at the corner of Sierra and Artemesia. All usual U.S. post office services, except general delivery, are available, and mail boxes may be rented.

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

Printing Services

Printing services, located in the Artemesia Building, is available to all faculty, staff, and students, and provides offset printing, photo-direct printing, high speed copying, phototypesetting, darkroom facilities, and bindery services.

Purchasing

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

The purchasing department also processes all university insurance claims, provides for short-term risk insurance for special occasions, and the registration and licensing of all motor vehicles and trailers.

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

Real Estate

The Real Estate Department is located in the Artemesia Building. This office maintains the real estate records and an inventory of property owned by the Board of Regents.

The Real Estate Department handles the purchases, sales, rentals and leases of property for the institutions in Business Center North.

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

Safety and Loss Control

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

Controller

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

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

Facilities Management

Facilities management is responsible for management of the university facilities. This includes facilities services, parking services, physical plant operations and maintenance, and scheduling services.

Facilities Services

The Office of Facilities Services (784-6948) maintains the inventory of all university instructional and non-instructional space and prepares evaluative space information for the Facilities Planning and Management Board whose chief respon-

sibility is campus master planning. The office also processes long-term space assignment requests made to the board and provides alternative emergency instructional settings.

Parking Services

All members of the university community — students, faculty, and staff — are permitted to park their vehicles in specified areas on university property in accordance with the University Parking and Traffic Regulations. Vehicles must be registered and have official parking permits.

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

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

Permits and parking information are available at the parking services department at 1305 Evans Avenue, (702) 784-4654, and in the Lombardi Recreation Building (second floor multipurpose room) during registration.

Physical Plant

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

Scheduling Services

The Office of Scheduling Services (784-6837) coordinates all off-campus and faculty/staff requests for space utilization. The office also processes classroom changes after the add/drop registration deadline.

Financial Services

Services provided by this office include special financial projections and analysis, assistance to campus departments in the management of their finances, assisting departments with the preparation of agreements and contracts, and monitoring of capital projects and their funding. The office also reviews agreements before approval by campus and/or system administrators.

Lawlor Events Center

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

Pioneer Center for the Performing Arts

The Pioneer Center for the Performing Arts is a multipurpose public assembly facility. The Pioneer Center is owned by the Reno/Sparks Convention and Visitors Authority and is managed by the staff of the Lawlor Events Center.

The Pioneer Center hosts a wide range of community and private events. The exhibit hall is used for exhibits, conventions and small or large meetings. The theater area is host to productions of opera, ballet, local theater and national Broadway touring companies and blues, jazz, rock and classical music art forms. For more information call (702) 786-5105.

Planning, Budget, and Analysis

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

Development

The vice president for development coordinates the alumni relations, fund-raising, and public information efforts of the university. The units involved in these efforts include the Alumni Association, Alumni Relations, the Office of Government Relations and Economic Development, the Office of Communications, and the University of Nevada, Reno Foundation.

Alumni Association

The University of Nevada, Reno Alumni Association Inc., 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, and development of programming in the field of alumni continuing education.

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

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

Alumni Relations

Alumni Relations works closely with the Alumni Association representing the 35,000-plus graduates of the university who maintain contact. Call (702) 784-6620 for more information.

Office of Communications

The Office of Communications is the liaison between the university and the publics it serves. The office is responsible for both on and off-campus communications, and is the central clearinghouse and authorized source of reference for commonly

quoted university facts and figures. This office contains three units: the News Bureau, Publications and Graphics, and the Speakers Bureau.

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

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

The Speakers Bureau, now in its 22nd year, is a free public service which makes available the resources of the university system to organizations throughout the state. The bureau is comprised of faculty and staff from the university as well as members of participating community colleges, the Desert Research Institute, and the Nevada Historical Society who volunteer their time to present topics of interest to requesting groups and organizations. The Speakers Bureau is housed in Jones Visitor Center. Call (702) 784-1583 for more information.

The university's quarterly magazine is edited and published by the Office of Communications. It is distributed to alumni, benefactors, and other friends of the university, contains feature stories about current university projects and people, and reports on alumni achievements. Call the editor at (702) 784-4941.

The Office of Communications also maintains the university's general information telephone lines: For more information about the University of Nevada, Reno or any of its programs or activities, call (702) 784-INFO. Nevada residents outside the Reno area can reach the university toll-free by calling 1-800-622-4UNR.

University of Nevada, Reno Foundation

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

The foundation is charged with the coordination, cultivation, solicitation, and processing of all private funds and gifts donated to the university. In addition to its own accounting and computer services staff, the foundation also includes resource people who are available to all colleges, schools, and departments for consultation and assistance. The office oversees several major programs, including the annual fund campaign, the President's Associates program, special campaign projects and coordination, planned giving, and scholarship solicitations.

Through the efforts of the staff, many volunteers, and support from the community, the foundation is able to fund or lend support to such areas as scholarships, new equipment, buildings, libraries, the Alumni Association, the Graduation Celebration, Foundation Professorships, and the Faculty Travel Program. The University of Nevada, Reno Foundation is housed in Morrill Hall. Call (702) 784-6622 for more general information. Call (702) 784-1587 for Foundation Accounting Services.

Dodd/Beals Fire Protection Training Academy

A comprehensive schedule of intensive training programs in flammable liquids and gases fire control is operated at the Stead Campus in coordination with the Western States Petroleum Association. The academy also offers up-to-date hazardous materials classes, curriculum including both classroom and hands-on training. The training is available to public fire service and petroleum industry personnel and offers not only classroom instruction but also field work on practical fire problems.

Affiliated Organizations of the University

Desert Research Institute

As a full-time environmental research and development organization, the Desert Research Institute (DRI) is the only one of the University of Nevada System's seven operating divisions which does not award degrees. However, the institute's faculty do support graduate student instruction and research supervision on the two university campuses. DRI's mission is to conduct research of importance to the state, the nation, the international scientific community, and in support of industrial needs and Nevada's economic diversification objectives.

Established in 1959, the Desert Research Institute currently conducts scientific investigations concerning atmospheric physics, air quality, water resources, archaeology, environmental and ecological responses to climatic change, and the development of technology in support of research applications.

Members of DRI's research faculty teach selected, technical subjects at the University of Nevada, Reno and the University of Nevada, Las Vegas, an arrangement that provides additional expertise in highly technical curricula without the corresponding full-time staffing requirements. Selected university graduate students are also hired to support DRI researchers on contracted projects, providing underwritten topics for theses and dissertations.

DRI receives about 93 percent of its funding in the form of research grants and contracts (1990 estimated budget, $18 million). The state of Nevada funds the remaining 7 percent to underwrite the salaries of the institute's core administrative staff. From time to time, various research efforts of importance to the state are also funded on an individual basis. DRI's president, the institute's chief executive officer, reports to the University of Nevada System Chancellor and to the Board of Regents.

The institute is currently staffed by approximately 300 full-time professional scientists, technicians and support personnel located in DRI office and laboratory facilities at Stead and in the Dandini Research Park in Reno, and in Las Vegas, Boulder City and Laughlin in southern Nevada.

Each of DRI's five research centers concentrates on a distinct area of environmental science that complements and interacts with the research areas addressed by the other centers. In contrast to the traditional academic organization into classic disciplines, i.e., chemistry, physics, geology, mathematics, etc., each DRI center is a combination of the several scientific disciplines relevant to the overall topics being investigated. It is common for DRI research teams to be assembled from among several centers, and also at times from the faculties of the university campuses in Las Vegas and Reno and other universities, depending upon the nature of the task.

The Research Centers

The five DRI centers are the Atmospheric Sciences Center, Biological Sciences Center, Energy and Environmental Engineering Center, Quaternary Sciences Center and Water Resources Center. Though they are based in Nevada, DRI research teams regularly travel throughout the U.S. and the world as projects require.

The *Atmospheric Sciences Center* has built an international reputation in the areas of cloud physics, air motions and weather modification research. Its scientists participate worldwide in projects ranging from the formational processes of Gulf and Atlantic hurricanes and High Plains hail suppression, to the development and application of weather modification techniques to augment the winter snowpack in the Sierra Nevada Range and elsewhere.

Pioneering basic research is conducted into the effects of cloud formation on global climates, ice crystal formation and boundary layer air turbulence. Parallel studies include the design, management and evaluation of cloudseeding efforts to increase precipitation. ASC is in its fourth year of operating the federally funded Western Regional Climate Center, coordinating climatic research and data analysis for 11 Western states.

The *Biological Sciences Center* conducts research aimed at improving our understanding of the interactions within and among environmental systems in the earth's biosphere for more effective management of biological resources. This is a broad focus encompassing global climatic change and the implications those changes have for environmental conditions in the intermountain West. With the anticipated development of an advanced controlled-environment research greenhouse, the center will expand experiments involving environmental simulation and modeling in cooperation with other DRI centers and related university departments.

The *Energy and Environmental Engineering Center* conducts research on the nature of air pollution conditions in urban settings as well as the relationship of urban air pollution sources with downwind rural air quality areas. The center has developed and applied advanced "source receptor" techniques to characterize air quality conditions in Las Vegas, Reno, and Denver, and central and southern California. The center's advanced instrumentation and air sampling capabilities have led to its involvement in national studies of acid deposition and to become the lead agency in the state of California's study of that problem.

A major new program area involves a ground-breaking effort to determine the influence of pollutant plumes from major southwest urban areas on the air quality of rural desert and mountain regions, particularly concerning the possible impacts on the scenic visibility of national parks and recreation areas.

The *Quaternary Sciences Center* focuses on the natural paleoenvironmental record of climatic change in the Western United States over the last 1.8 million years (Quaternary Epoch), and the more recent development of human cultures in arid lands. This research emphasizes an anthropological approach to historic, prehistoric, geologic and archaeological studies concentrated in the Western and Southwestern United States. The center's interdisciplinary program includes specialists in the fields of social analysis, demography, geology, geomorphology, palynology, paleoclimatology, and climate modeling in addition to the core subjects of archaeology and anthropology.

Major ongoing projects include an examination of the technological change of Native Americans from a hunter-gatherer culture to agriculture in the American Southwest and cultural resources surveys and analyses in advance of industrial or governmental and disturbing activities to preserve and interpret the archaeological record. Other investigations involve studies of prehistoric and Neolithic societies in Jordan and Cyprus.

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

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

For further information about the Desert Research Institute, contact the President's Office, P.O. Box 60220, Reno, Nevada 89506, or call (702) 673-7311 in Reno or (702) 798-5771 in Las Vegas, Nevada.

National College of Juvenile and Family Law

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

research, technical assistance and publications.

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

The National College of Juvenile and Family Law, the nation's largest training center for judges and other professionals in the juvenile justice system, conducts a variety of programs on campus for judges and court administrators from all parts of the United States, its territories, Canada, and several other foreign countries. In addition to the resident programs, the college also provides regional and state institutes across the nation. Since 1969, more than 102,000 juvenile justice personnel have participated in its continuing judicial education programs.

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

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

The National Judicial College

The university is the academic home for The National Judicial College. This institution has the high purpose of improving the administration of justice by providing programs of judicial education and training for the nation's judges. An affiliate of the American Bar Association, the college offers formal classes covering such topics as evidence, sentencing, and judicial writing which are taught by judges and specialists from across the country. After class, judges also share ideas and experiences in informal discussion groups.

The college conducts resident, extension, special and innovative programs on a year-round basis. Resident sessions are of one to four weeks in duration, each year attracting some 1,700 state court trial judges, administrative law judges, special court judges, tribal judges, federal magistrates, court administrators and other court personnel. Nearly 700 foreign judges from 155 countries have received training, bringing the total to more than 37,000 judges who have completed courses both on and off the University of Nevada, Reno campus during the 25-year history of the college.

Federal Agencies

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

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

Admission Information

General Requirements

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

Diversity: The university actively seeks women, nontraditional, minority, handicapped, and international student applicants. The university encourages diversity among its student population.

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

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

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

Admission Filing Dates: Application forms must be submitted not later than June 15 with proper credentials for admission to the fall semester and December 1 for admission to the spring semester. Applications received after these dates will be processed on a first come, first served basis.

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

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

(a) Satisfactory scores on the Test of English as a Foreign Language (TOEFL) indicating an ability to speak, write, and understand the English language sufficiently to pursue full-time study. The Test of Written English (TWE) is required for potential graduate teaching assistants.

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

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

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

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

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

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

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

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

Early Admission

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

Admission is offered to freshmen applicants who have an ACT (enhanced) composite score of 21 or higher, or an SAT combined score of 925 or higher, supported by an ACT or SAT self-reported high school grade point average of 2.75 (A = 4.0) or higher in academic courses.

To accept admission, the applicant must provide all information requested by the Office of Admissions and Records.

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

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

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

All students accepted for early admission must submit a final official high school transcript indicating successful graduation and date of completion prior to registration at the university.

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

1. Evidence of an overall grade point average of 3.0 (A = 4.0) or above after six semesters—the end of the junior year, or 2.5 or higher after seven semesters.
2. An ACT (enhanced) composite standard score of 22 or above or SAT combined score of 950 or higher.
3. Be within three units of high school graduation.
4. Be enrolled, or approved for enrollment, in the courses that will satisfy high school graduation requirements and the university admission requirements. High school course enrollment must be certified by secondary school officials. An approved student who ceases attending high school becomes ineligible to continue in university courses. Registration is cancelled upon the recommendation of the principal or counselor.
5. Have a personality showing mature social behavior.
6. Have parental approval and be recommended by the high school principal or counselor.

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

Undergraduate Academic Requirements

Admission to Bachelor's Degree Programs

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

High School Graduation: Each applicant for admission to freshman classification must present satisfactory evidence of graduation from an accredited or approved high school. Graduates of nonaccredited or nonapproved high schools may be admitted on probabtion.

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

High School Courses (Units) Required: Specific courses (13.5 units), in addition to the graduation and GPA requirements:

English (4): emphasis on composition, rhetoric, and American, English and world literature.

Mathematics (3): includes algebra, geometry, trigonometry or advanced mathematics.

Social Studies (3): including world history and geography, U.S. history, economics, government, and law.

Natural Science (3): including biology, chemistry, and physics (with at least two years in a laboratory science).

Computer Literacy (½): understanding computers and their use.

Approved Alternatives That Satisfy the High School Course Requirements: The high school course requirement is waived for an applicant who satisfies one of the following:

- Graduation from high school with a GPA of 3.0 (B) or higher in the required academic courses, *or*
- Graduation from high school with a GPA of 2.5 (C+) or higher in the required academic courses *and* an ACT (enhanced) composite score of 21 or higher, or SAT combined score of 925 or higher.
- Transfer applicants with 15 or more acceptable semester credits in transferable general education courses with a cumulative GPA of 2.0 (C) or higher.
- Appeals: Students who are denied admission to the university may petition, in writing, to the director within 10 days of receipt of their denial letter. The Special Admissions' Committee will review the petition and make a determination of admissability.

Admission for International Students

The minimum academic requirements for international applicants are:

1. Official evidence of an educational level equivalent to graduation from an accredited American high school.
2. Evidence of above-average ability (B or higher) in an academic curriculum as verified by official transcripts or satisfactory test scores. Applicants who cannot submit official transcripts of record may obtain specific information upon request from the Office of Admissions and Records.
3. Applicants with advanced standing must submit evidence of above average achievement in their college-level courses.
4. During orientation each semester, all new international students (undergraduate and graduate) must report to the Intensive English Language Center (IELC) for an English placement test before registering. The center is located in the Mackay Science Building, Room 127, or phone 784-6075. Based on the results of that test, additional English language courses may be required of the student during the first semester on campus.

Admission on Probation

Freshman on Probation: A Nevada resident who graduates from high school and satisfies the specific units required, and has *either* a high school GPA of 2.0 to 2.29 *or* an ACT (enhanced) composite student score of 21 or higher (or an SAT combined score of 925 or higher) qualifies for admission on probation.

A freshman admitted on probation receives good standing when 15 semester credits or more are earned at the university with a cumulative GPA of 2.0 or higher.

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

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

FRESHMAN ADMISSION: Recommended High School Courses (Units) and Minimum GPA Requirements

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

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

standing at the educational institution last attended; and second, official transcripts must be presented from each college or university attended showing an overall C average or above on all acceptable transfer credits. An applicant transferring to the university with less than 15 acceptable transfer credits is required to satisfy both the transfer and high school graduate admission requirements.

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

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

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

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

Unaccredited Institutions: Credits earned in U.S. institutions of higher education that are *not* accredited by one of the regional or national accrediting associations recognized by the Council on Postsecondary Accreditation (COPA), are *not* ac-

cepted in transfer by the university. The policies permitting advance course placement and the earning of credit for nontraditional learning provide adequate opportunities for the objective evaluation of knowledge acquired through a variety of learning experiences including military service schools.

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

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

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

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

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

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

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

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

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

Credit for Nontraditional Learning

Examinations

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

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

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

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

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

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

The CBAPE institutional code for the University of Nevada, Reno to receive score reports is 4844.

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

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

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

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

The ACT institutional code for the University of Nevada, Reno to receive score reports is 2494.

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

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

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

It is the student's responsibility to request the score reports and essays as required to be sent to the Office of Admissions and Records.

Special Department Examination

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

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

College Board Advanced Placement Examination (CBAPE)

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

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

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

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

*With an objective test score of 3, 4, or 5 and a satisfactory essay examination, six credits are granted, which satisfies the university English requirement.

**Does not satisfy the U.S. or Nevada Constitution requirements.

College-Level Examination Program (CLEP)

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

The general examination(s) should be completed before an individual enrolls at the University of Nevada, Reno, and must be completed prior to achieving sophomore classification at the university. Subject examinations may be taken at any time. The University of Nevada, Reno's testing services tests on Mondays and Tuesdays of the weeks advertised in the CLEP Bulletin, located in Thompson Student Services Center, Room 105, 784-4638.

An "e" means an essay is required in addition to the objective test.

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

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

**Examination discontinued in 1986.

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

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

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

ACT Proficiency Examination Program (PEP)

Credit may be granted for selected PEP examinations completed with satisfactory scores. Upon receipt of an official score report, the admissions office grants credit as specified and assigns a grade of S for a standard score of 50 and above, or a letter grade of C or higher. The examinations may be taken at any time. They are offered on the first Thursday and Friday of February, May, June and November. Registration is required through the ACT PEP Registration Packet available in Thompson Student Services Center, Room 105, 784-4638.

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

*Examinations discontinued November 1987.
**With an objective test score of 50 or higher (or a grade of C or higher), and a satisfactory essay examination, six credits are granted which satisfies the university English requirement.
***Examination discontinued May 1988.

Science		
Anatomy and Physiology	None	6
Earth Science*	None	3 e
Microbiology	None	3
Physical Geology	GEOL 101	3

*Examinations discontinued November 1987.

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

A total of 28 credits may be granted for NLN Mobility Profile II examinations completed with a decision score of 100 and/or an advising score of 70 percent. Upon receipt of an official score report, the Admissions and Records Office grants credit as specified and assigns a grade of S. The examinations may be taken at any time and scores are accepted for five (5) years from the date of testing.

Examination	University Course Equivalent	Credit Granted
Care of the Adult Client	None	11
Care of the Client During Childbearing and Care of the Child	None	11
Care of the Client with Mental Disorders	None	6
Pharmacology in Clinical Nursing	None (Satisfies the pharmacology requirement in nursing)	0

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

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

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

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

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

Noncollegiate Learning Experiences

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

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

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

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

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

Graduate Admission Requirements

Any student who wishes to do graduate study must first be admitted to the university in either graduate standing or graduate special classification. Each applicant is responsible for filing the required credentials with the Office of Admissions and Records at least three weeks prior to the desired registra-

tion period to allow sufficient time for processing.

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

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

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

General Requirements: Each applicant must submit the following:

1. A completed Application for Admission, properly dated and signed.
2. A nonreturnable $20 application fee.
3. Graduate standing applicants must request each college or university attended to send *two* official transcripts directly to the Office of Admissions and Records. A University of Nevada, Reno graduate is not required to submit transcripts of the credit earned at 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 and Records. A Degree Certification form may be completed in lieu of the official transcript requirement if the applicant so desires. Should a graduate special applicant later apply for graduate standing, official transcripts (two copies) are required from *each* school attended.

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

Test Score Requirements: Each student is responsible for arranging to complete the required examinations and for requesting the official score reports to be sent directly to the university Office of Admissions and Records. The institutional code for the university for these tests is 4844. Information regarding test dates, costs and registration may be obtained from Testing Services, Thompson Student Services Center, Room 105, University of Nevada, Reno, Reno, NV 89577, telephone (702) 784-4638 *or* by writing directly to the respective testing organizations:

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

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

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

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

Admission to Institutions within the University of Nevada System

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

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

Regulations for Determining Residency for Tuition

Regulations for Tuition Charges

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

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

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

SECTION 1. Purposes

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

SECTION 2. Definitions

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

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

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

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

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

SECTION 3. Tuition Charges

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

SECTION 4. Rules for Determining Status

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

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

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

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

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

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

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

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

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

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

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

12. An alien student holding a permanent immigrant visa and otherwise meeting the requirements for in-state student status shall be classified as an in-state student. Alien students holding other types of visas shall not be classified as in-state

students except as may be required by federal law upon due consideration of evidence of in-state residence.

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

GUIDELINES FOR DETERMINING CHANGE IN TUITION STATUS.

The following are guidelines to assist the University of Nevada System personnel in making determinations on applications for changes in tuition status under Section 4.10 of these regulations:

Residence in Nevada While Not Attending Any Institution of the University of Nevada System: A person who has matriculated as an out-of-state student and thereafter has resided in the state of Nevada for a period of 12 months while not attending any institution of the University of Nevada System will qualify as a bona fide resident.

Residence in Nevada While Attending Any Institution of the University of Nevada System: A student attending any institution of the University of Nevada System who has matriculated as an out-of-state student is eligible for reclassification as an in-state student if the student has resided continuously in the state of Nevada for a period of at least 12 months and the student can present evidence of intention to become a bona fide resident:

a. Registering to vote in Nevada;

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

c. Registering in Nevada any vehicles owned by the student; and

d. Filing a Federal Income Tax return in Nevada.

If the student does not provide all of the evidence stated in paragraphs a through d above, the system will consider other convincing, independent evidence which the student may wish to present to prove intent to become a bona fide resident.

SECTION 5. Application of Regulations

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

SECTION 6. Determination of Status

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

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

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

SECTION 7. Exceptional Cases

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

Regulations for Reduced Nonresident Tuition

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

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

the semester in which enrollment is sought, may also be charged reduced nonresident tuition.

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

The list of approved high schools and counties includes:

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

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

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

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

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

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

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

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

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

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

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

On February 23, 1990 the University of Nevada Board of Regents approved the following policy to be effective for the 1990 fall semester:

Children of University of Nevada, Reno Alumni: Children of University of Nevada, Reno alumni, who graduated with a baccalaureate degree, and who reside outside the state of Nevada, are eligible for reduced nonresident tuition upon application when enrolling in undergraduate studies only at the university.

The University Core Curriculum

Completion of the university's core curriculum is required of all undergraduate students. Core curriculum requirements DO NOT APPLY to transfer students who entered the university prior to the 1990 fall semester or to students who began transfer course work at the following University of Nevada System institutions prior to the 1990 fall semester: Clark County Community College, Northern Nevada Community College, Truckee Meadows Community College, Western Nevada Community College, University of Nevada, Las Vegas

The university core curriculum consists of 33-36 credits, selected from the following seven areas of study: (1) English, (2) mathematics, (3) natural sciences, (4) social sciences, (5) fine arts, (6) the western tradition, and (7) capstone courses.

Core Courses

Students are responsible for keeping track of their progress throughout the core curriculum. It is strongly recommended that students meet with their academic adviser each semester prior to registering for classes.

See the Course Listings section of this catalog for course descriptions and prerequisites.

Core curriculum courses are listed below:

1. FIRST-YEAR WRITING COURSES (English)—three to six credits

Initial placement in first-year English courses is to be based on ACT/SAT/TSWE test scores.

English Course	ACT English	SAT Verbal	SAT TSWE
ENGL 1	1-18	200-399	37 or less
ENGL 101	19-28	400-599	38-56
ENGL 102, 102H*	29-36	600-800	57 or more

Successful completion of ENGL 102 satisfies the core curriculum requirement. Normally, students take ENGL 101 the first semester and ENGL 102 the second semester. ENGL 1 is for students who need extra practice in writing skills before starting ENGL 101.

The core requirement in English must be completed before taking the western tradition sequence.

International students must complete ENGL 114 and any prerequisites.

	Credits
ENGL 101—Composition I	3
ENGL 102—Composition	3

2. MATHEMATICS—three credits

Placement is based on ACT or SAT scores, unless otherwise noted.

Math Course	ACT Math Score	SAT
MATH 101	19 or below	464 or below
MATH 105, 115	20 to 29	465 to 579
MATH 211, 213, 215 or C S 183	30 or above	580 or above

	Credits
MATH 105—Fundamentals of College Mathematics OR	3
MATH 115—Algebra and Trigonometry OR	5
MATH 211—Elements of Calculus OR	3
MATH 213—Calculus for Science OR	3
MATH 215—Calculus I	4

3. NATURAL SCIENCES—six credits (two courses must be completed; one in biology, chemistry, or physics.)

	Credits
ANTH 102—Human Origins and Evolution	3
B CH 150—Biotechnology: Science and the Citizen	3
BIOL 100—Biology: Principles and Applications	3
CHEM 101—General Chemistry	4-5
CHEM 102—General Chemistry	4
CHEM 105—Fundamentals of Chemistry	3
CHEM 201—General Chemistry for Scientists and Engineers	4
CHEM 202—General Chemistry for Scientists and Engineers	4
GEOG 103—Geography of Man's Environment	3
GEOL 101—Our Dynamic Planet Earth	3
METE 151—Introduction to Materials	3
NUTR 121—Human Nutrition	3
PHYS 100—Introductory Physics	3
PHYS 151—General Physics	3
PHYS 152—General Physics	3
PHYS 153—General Physics Laboratory (to be taken with PHYS 151)	1
PHYS 154—General Physics Laboratory (to be taken with PHYS 152)	1
PHYS 201—Physics for Scientists and Engineers I (to be taken with 204)	3
PHYS 202—Physics for Scientists and Engineers II (to be taken with 205)	3
PHYS 203—Physics for Scientists and Engineers III (to be taken with 206)	3
PHYS 204—Physics for Scientists and Engineers I (to be taken with 201)	1
PHYS 205—Physics for Scientists and Engineers II (to be taken with 202)	1
PHYS 206—Physics for Scientists and Engineers III (to be taken with 203)	1
PSY 103—Introduction to Psychology as a Natural Science	3

4. SOCIAL SCIENCES—three credits

	Credits
ANTH 101—The Human Experience OR	3
EC 101—Principles of Macroeconomics OR	3
EC 102—Principles of Microeconomics OR	3
GEOG 106—Introduction to Cultural Geography OR	3
P SC 101—American Politics: Process and Behavior OR	3
P SC 211—Comparative Government and Politics OR	3
P SC 231—World Politics OR	3
PSY 101—Introduction to Psychology as a Social Science OR	3
SOC 101—Principles of Sociology	3

5. FINE ARTS—three credits

	Credits
ART 100—Visual Foundations OR	3
ART 116—Survey of the Art of Western Civilization I OR	3
ART 117—Survey of the Art of Western Civilization II OR	3
ART 121—Drawing OR	3
MUS 111—Concert Choir OR	1
MUS 118—Symphonic Band and Wind Ensemble OR	1
MUS 119—Symphonic Choir OR	1
MUS 120—Survey of Jazz OR	3
MUS 121—Music Appreciation OR	3
MUS 122—Masterworks of Music OR	3
MUS 125—University Orchestra OR	1
MUS 149—Studio Instrument/Voice for the Nonmajor OR	1
MUS 201—Music History I OR	3
MUS 202—Music History II OR	3
MUS 203—Music History III OR	3
MUS 204—Chamber Music for the Nonmajor OR	1
THTR 100—Introduction to the Theatre OR	3
THTR 118—Orientation to Performing Theatre OR	3
THTR 221—Interpretation	3

6. THE WESTERN TRADITION—nine credits

All three western tradition courses are required. W T 201 must be taken first. W T 202 and 203 may be taken in any order.

	Credits
W T 201—Foundations of Western Culture AND	3
W T 202—The Modern World AND	3
W T 203—The American Experience and Constitutional Change	3

7. CAPSTONE COURSES—six credits

The last two courses in the university core curriculum will include issues relating to science and society and analysis of different cultures and traditions. For more information, contact your academic adviser.

*Honors level.

Registration and Records

Period of Registration

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

Returning Students: Students returning to the university after an absence of one or more semesters are required to submit a registration application by June 15 for the fall semester or December 1 for the spring semester so that proper registration forms may be prepared.

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

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

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

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

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

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

Advisement for University Course Requirements

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

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

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

Required Courses: (Please refer to the University Core Curriculum section of this catalog.)

Authorized exemptions:

1. An ACT English standard score of 29 or above (or SAT verbal scores of 600 or above), verified by a satisfactory written composition administered and evaluated by English department personnel, qualifies a student for exemption from ENGL 101 and placement in 102. Credit is not awarded for ENGL 101 as a result of this advanced placement.

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

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

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

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

International graduate teaching assistants must achieve an acceptable score on the Test of Written English (TWE).

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

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

Registration

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

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

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

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

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

Dropping a Course: A student may drop a course during the first *six* weeks of the semester without a grade or teacher approval. Drops which occur during the seventh and eighth weeks require the instructor to determine if the student is passing or failing. If the student is passing, the instructor must sign, date, and mark *passing* on the drop form. If the student is failing, the instructor does *not* sign the drop form. The failing grade is reported on the final class list.

The dropping or changing from grade to audit of individual courses during the ninth week through the end of the semester is not permitted. Under extenuating circumstances, including illness, accident or similar medical emergency or other hardship cases, as described in the incomplete policy, the student has the options of either requesting an incomplete in one or more courses, or withdrawing from the university. In both cases, the student has to follow the rules described in the appropriate sections of the catalog regarding the incomplete and withdrawal from the university policy.

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

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

Withdrawal from the University: A student wishing to withdraw for the semester from the university should obtain the proper form from admissions and records and contact the Office of Advisement, Counseling and Retention, Thompson Student Services Center, Room 105, for a personal interview and assistance in finalizing the withdrawal from the university. A withdrawal which occurs after the first *six* weeks of the semester requires each instructor to determine if the student is passing or failing. When the student obtains the required signatures and files the completed form in admissions and records, the withdrawal is official. *A student who leaves the university without officially withdrawing receives a failing grade in all courses.*

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

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

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

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

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

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

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

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

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

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

Categories of Students

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

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

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

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

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

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

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

Classification of Students

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

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

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

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

Full-Time and Part-Time Students

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

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

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

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

Grades and Examinations

Grades and Marks

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

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

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

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

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

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

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

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

I is a neutral mark and means INCOMPLETE. An I is given when a student is performing passing work, but for some uncontrollable reason is unable to complete the course requirements during the instructional period. An I is excluded from grade point average computation.

An I given prior to the 1990 Fall Semester and not made up within one calendar year from the date of issuance remains an I indefinitely. Credit may then be earned only by registration and the successful completion of the course.

Effective 1990 Fall Semester: To be considered for an I, each student is responsible for initiating a Request for Incomplete form and providing adequate evidence of their uncontrollable reason to the instructor prior to the assignment of final grades. Non-attendance, poor performance or requests to repeat the course are unacceptable reasons for an I.

Acceptable student requests for an incomplete require the instructor to indicate the work needed to complete the course and the approximate grade of the student at the time the I is given on the form. Department chairman approval is required prior to the instructor's filing of the completed form with their final class list. An assigned incomplete not accompanied by an approved Request for Incomplete form is unacceptable; an F will be recorded.

Marks of I are automatically changed to F if they are not made up by the last day of the next regular semester (Summer Session excluded). Students are not permitted to graduate with an outstanding incomplete issued under this policy.

An extension of an Incomplete for one semester may be requested. A completed and approved Request for Incomplete

form must be filed in the Office of Admissions and Records by the instructor at least two weeks prior to the end of the I expiration semester.

An incomplete is made up if the student completes and submits the outstanding course requirements to the instructor before the end of the next regular semester following the semester in which the incomplete was earned. The instructor is responsible for reporting the final grade and acquiring the approval of the department chair and dean on the Grade Report for Incomplete form prior to filing in the admissions and records office.

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

Grades and Grade Point Average

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

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

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

Grade Changes and Appeals

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

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

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

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

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

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

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

Academic Recognition

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

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

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

Honors at Graduation: The requirements to graduate in the Honors Program are:

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

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

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

The Gold Medal: Awarded annually at Commencement, the Gold Medal for scholarship is given to the graduating senior who has achieved the highest undergraduate GPA while completing 120 semester credits or more in regularly graded (A, B,

C, D, F) courses involving classroom instruction at the university.

Undergraduate Academic Standards

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

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

A baccalaureate degree student may not earn credits or grade points in university courses numbered below 100 to apply toward a four-year degree or to remove a negative grade point deficiency.

Probation

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

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

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

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

Suspension

Conditions: An undergraduate student deficient 15 or more cumulative grade points at the end of any semester is suspended from the university. If the class preparation, attendance, or progress of a student toward a degree is deemed unsatisfactory, the student may be suspended from the university at any time.

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

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

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

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

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

Readmission Procedures: A student under academic suspension may apply for readmission whenever the credit and grade requirements are satisfied as stated. An application for readmission must be submitted to the director of admissions and registrar by June 15 to be considered for the fall semester or December 1 for the spring semester.

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

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

Disqualification

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

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

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

Graduate Academic Standards

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

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

Requirements for Graduation

Catalog: A student may elect to graduate under the degree requirements of the year of admission and registration, the year of acceptance to a major in which the student is graduating, or

the year of graduation, but not a combination of these. In the case of reentry after an extended leave of absence of more than five years, a student may use the requirements of the year of reentry, the year of acceptance to the major in which the student is graduating or the year of graduation, but not a combination of these. When course offerings or prerequisites within the academic major have changed, the major department shall determine acceptable alternatives.

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

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

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

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

Course Requirements (For students entering the university prior to fall 1989 semester): In addition to the courses specified by each school or college, university course requirements in constitution (United States and Nevada), English, mathematics, natural science, and social science or humanities must be satisfied by each candidate for a degree. Specific course information is listed in the section on Advisement for University Course Requirements.

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

Credits earned by examination are applicable, except for the United States and Nevada Constitution requirement, which must be satisfied by the completion of an appropriate course. A single course may satisfy only one university requirement in English, mathematics, natural science, and social science or humanities.

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

Each first-time freshman student entering the university, beginning with the 1989 fall semester, and thereafter, must satisfy the university core curriculum along with the college, department and major requirements for graduation.

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

Authorized exceptions to this rule are:

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

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

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

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

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

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

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

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

Bachelor's Degrees and Credit Requirements

A minimum of 124 semester credits are required to graduate with a bachelor's degree from the University of Nevada, Reno. The individual schools and colleges may require additional

BACHELOR'S DEGREES OFFERED AND CREDITS REQUIRED

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

credits as specified in the listing of Bachelor's Degrees Offered and Credits Required.

Second Undergraduate Degrees

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

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

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

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

Dual Undergraduate Majors

A student may elect to complete two majors within the requirements of one bachelor's degree program. The request to

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

Undergraduate Minors

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

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

Undergraduate Thesis

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

Advanced Degrees

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

Transcript of Record

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

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

Regulations for Student Records

Confidentiality and Release of Information

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

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

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

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

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

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

Retention and Disposition

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

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

Admissions and Records

1. The permanent academic records of students are retained indefinitely.

2. Applications for admission and/or readmission, transcripts issued by other institutions, applications for resident fees, military service documents, undergraduate admission evaluations, advanced standing admission evaluation, including CBAPE, CLEP and ACT-PEP, changes of college, major or adviser and pertinent correspondence are retained for one year following graduation or five years after the last date of attendance.

3. Final class (grade) lists including special (departmental) examinations, Continuing Education final grade reports, and registration source documents are retained five years.

4. The admission files of students who do not register, are disapproved or are incomplete, changes of registration, withdrawal forms, transcript requests, and disciplinary action notices are retained for one year.

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

Fees and Expenses

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

Payment of Accounts

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

Application Fee

People making application for admission to the university are charged a fee of $20, which is not refundable nor applicable to any other fee. The fee is payable through the Cashier's Office, Ross Hall.

Registration Fees

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

Tuition for Nonresidents

Tuition of $1,500 per semester is charged undergraduate and graduate students (excluding four-year medical students) registered for seven or more credits who are nonresidents of Nevada. This is in conformity with Sections 10.020 and 396.540, Nevada Revised Statutes. Each student is responsible for providing documentary proof of Nevada residence on the application provided through the Office of Admissions and Records. This fee is in addition to the per credit registration fee. Tuition of $200 per semester is charged to nonresident students who are approved under the "Good Neighbor" policy.

Four-Year Medical Program

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

Fees for Senior Citizens

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

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

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

Late Registration Fee

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

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

Student Associations

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

Student Health Center

All students may pay an optional fee of $40 per semester and be entitled to the services offered by the Student Health Service. A $10 late fee applies to those who pay the optional fee after the end of the late registration period. The same services are available to any student's spouse and at the same rates. Payment of the Student Health fee is required to purchase the supplemental accident and health insurance coverage.

Accident and Health Insurance

An accident and health insurance plan is available to all students who pay the health service fee. Coverage can be purchased at registration or at the Cashier's Office. Further information about the insurance plan is available at the Student Health Center.

Admission to Intercollegiate Athletic Events

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

Refund of Fees

Registration Fees

1. 100 percent of registration fees are refunded for net credit load reductions made on or before the last day of registration.

No refund of registration fees is granted for courses dropped after the last day of late registration.

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

Nonresident Tuition

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

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

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

Dates of Refunds

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

Insurance and Special Fees

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

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

Refunds for Exceptional Circumstances

Upon presentation of documentation to the director of advising, counseling and retention, Thompson Student Services Center, Room 105, and approval of the vice president for student services, a full refund of the registration fee and nonresident tuition is given upon official withdrawal at any time during the first eight weeks of the semester in the following instances:

1. Induction of the student into the U.S. Armed Forces.
2. An incapacitating illness or injury which prevents the student from returning to school for the remainder of the semester.
3. Death of student.
4. Death of spouse, child, parent, or legal guardian of the student.

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

Grant-In-Aid and Accounts Receivable

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

Deferred Payment Option

Deferred payment is available to students whose fees are $280 or more. Special course fees, the health center fee, and accident and health insurance are not deferrable. A part of the residential hall and food service fees may also be deferred. Approximately one-half (½) of the total due is payable upon registration. The balance is due and payable not later than Friday of the sixth week of instruction. This option is available during the fall and spring semesters only. Any unpaid balance on a deferred fee payment becomes a student accounts receivable on the due date and is treated as an official fee hold for future registration and transcript privileges. A penalty fee of $10 per $100 (or fraction thereof) is charged on the deferred balance not paid by the due date.

Payment by Personal Checks

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

Payment by Credit Cards

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

Special Instruction Fees

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

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

Graduation Fee

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

Transcript of Record Fee

A fee of $2 must be paid in advance for each transcript of record. The fee is payable through the Cashier's Office, Ross Hall.

Other Fees

American College Testing Program (ACT) examination, $25 if taken at a time other than national test dates; special examination fee, $25 per course; New Student Orientation programs, summer ($15), fall and spring mini-sessions ($10 or $5); Placement Office registration fee, $5; Placement Office fee for reactivation and updating credentials, $5; late application for graduation, $5.

Housing and Food Service Fees

Housing

The housing fees for the 1990-91 academic year are listed for information. Fees are pending final approval.

Double occupancy — $1,630 per person per year, plus a refundable damage security deposit of $100 per semester.

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

Continued residence hall and meal plan services are contingent upon good conduct and prompt payment of fees as delineated in the housing and food service licenses.

Food Service

Four meal plans are available. All freshmen who live in residence halls are required to purchase one of the four plans. The following annual rates are:

7 meals per week — $1,070
10 meals per week — $1,130
15 meals per week — $1,220
20 meals per week — $1,340

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

Deferred Payment Option

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

Cancellations and Refunds

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

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

Student Services and Activities

The Office of Student Services is administered and coordinated by the vice president of student services. Major program areas are administered by the associate dean of students, records and enrollment services (outreach, recruitment, admissions, records, registration, student financial aid, student employment, and scholarships); the ASUN manager (associated students, student activities, and bookstore); a special assistant to the vice-president who coordinates the Student Mediation Center; the associate dean, student life (residential life and housing, food services, discipline and judicial boards, student union, campus police, and planetarium); and the associate dean, student development (academic advising, orientation, counseling services, career advisement, substance abuse prevention, and the Women's Center).

The vice president also works in cooperation with the vice president for academic affairs, the academic deans, and the Graduate School in the areas of admissions, student recruitment, retention, academic support, student affirmative action, and the student code of conduct and due process.

Academic Support Services

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

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

Special assistant to vice president for student services is located on the first floor of Thompson Student Services Center. Areas of responsibility include the Mediation Center, exit interviews, select retention programs, and Testing Programs.

Student Mediation Center

The Student Mediation Center facilitates communication when conflict arises between students, faculty and administrators. The center adheres to the triple principles of impartiality, independence, and confidentiality. Appointments may be made by calling the Mediation Center in Thompson Student Services Center, Room 105, (702) 784-4177.

Campus Tours and Visitations

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

New Student Orientation

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

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

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

Academic Advisement Center

The Academic Advisement Center provides official advising for undeclared majors in the College of Arts and Science. The primary function of the center is to help undecided students define their academic goals and select a major field of study in accordance with their interests and abilities. Nondegree students, and students who have questions about the university's academic programs, are encouraged to visit the center. For assistance, contact the staff of the center at 784-1537.

Minority Student Affairs

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

Counseling Center

Professional Counseling

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

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

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

Testing Services

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

International Student Office

The International Student Office provides a variety of services to nonimmigrant students and scholars at the university. As an international student's first point of contact upon arrival at the university, it provides orientation to campus and the community, advisement on personal, academic, financial matters, and assistance and information on regulations and laws governing their status in the United States.

The International Student Office maintains records on nonimmigrant students as required by the U.S. Immigration Service. New international students must report to the International Student Office prior to registration and be aware of the following regulations:

1. They must register on a full-time basis each semester (undergraduate — 12 or more credits; graduate — nine or more credits).
2. Financial obligations must be paid on time.
3. They must enroll in the University of Nevada, Reno Student Health Service and insurance plans.
4. Employment off campus is prohibited unless properly authorized.

The international student adviser serves as the adviser to the International Club which provides social and cultural programs for global awareness on campus and in the community. The Family Friendship Program helps establish the connection between international students and community members.

The International Student Office is located in Thompson Student Services Center, Room 104, (702) 784-6874.

Student Information Services

The activities office of the student union and campus food service serves as a university clearinghouse for information, particularly with reference to extracurricular and cocurricular activities. Students who seek any kind of information or have problems relating to extracurricular or cocurricular activities may obtain assistance from the personnel in this office or may be referred to the appropriate agency if a specialized problem exists.

Substance Abuse Education Programs

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

Upward Bound Program

The Upward Bound Program, funded by the U.S. Department of Education, is designed to identify and assist 65 high school students who have the potential to succeed in post-secondary education programs. These students must also meet eligibility requirements which include a limited family income and/or first-generation college status. Assessments, counseling, tutoring, cultural events and career planning activities are provided during the academic year. A six-week instructional

program is offered on the campus during the summer for credit. Program graduates attend the summer session for university credit. For more information or to make a referral, visit Thompson Student Services Center, Room 103, or call 784-4978.

Public Safety

Police: *Emergency Number: 911. Non-emergency calls for service: 785-2121. Office: Monday-Friday 8:00 a.m. to 10:00 p.m., 784-4013.* The university police is an agency of the university community. Its purpose is to serve and protect the students, staff, faculty, and all other people and property within the jurisdiction of that community.

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

University police have the exclusive responsibility of acting upon law enforcement matters and performing police functions for the University of Nevada, Reno main campus, Stead apartments, and agricultural installations in the Truckee Meadows. The police also have jurisdiction at the Sierra Nevada Job Corps, the Truckee Meadows Community College, and the Desert Research Institute.

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

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

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

The dispatch number (784-6971) reaches the 24-hour dispatch center, which is in direct contact with other emergency centers in the area.

Fleischmann Planetarium

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

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

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

General Information

Absences

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

Housing Information

The university provides students with a number of residential opportunities as well as several food service options. The core of the housing program is provided by the university residence halls which supply complete living facilities for approximately 1,000 men and women. In addition, a number of national fraternities and sororities maintain chapter houses near the campus, and the College Inn assigns a limited number of rooms for student use with a preference given to graduate students.

General Policy

All regular, full-time students are eligible to live in university residence halls. Undergraduate student residents are expected to be enrolled in at least 10 credits per semester. On-campus living is available to part-time (seven credits or more) students on a space available basis; however, priority is given to full-time students.

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

Residence Halls

The University of Nevada, Reno maintains five residence halls which are supervised by the Residential Life and Housing Department.

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

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

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

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

Residence Halls for Men and Women: Manzanita Hall has a long tradition as the women's residence hall. A study lounge and comfortable living room help create a home-like environment shared by 100 women. Lincoln Hall is available for male students except for those areas which may be assigned to the Honors Program. Individuality in rooms and a recreation room serve the 66 men residents of this tradition-filled campus hall.

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

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

For additional information write to Residential Life and Housing Department, University of Nevada, Reno, Nevada 89557 or phone (702) 784-6107.

Married Student Housing

The university maintains 40 one-bedroom, unfurnished apartments which share central laundry facilities. Applications for married student housing may be requested from the Residential Life and Housing Department.

Additional married student housing is available at the Stead facility. See *Stead Apartments* under Other Housing Options.

Other Housing Options

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

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

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

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

College Inn: The College Inn is a residence and conference facility with food service capabilities. It currently assigns 50 rooms for student use. For more information, telephone College Inn management at 323-0321.

Food Services

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

Dining commons regulations for students are:

1. Four meal plans are available – 7, 10, 15 or 20 meals per week. Students who purchase a meal ticket must retain one of the four meal plans for the entire semester. Freshmen who live in the residence halls are required to select one of the meal plans for two consecutive semesters.
2. If the contract meal option is selected, students are expected to forward funds for housing and food service along with their new student or renewal housing contract. If the deferred payment option is selected, the signed deferred payment form should also be returned with the contract and funds.
3. The first meal served each academic semester is breakfast on the first day of registration and the last meal served is dinner on the last day of final examinations. Meals may be served during official university recesses or on holidays.
4. Students living off campus who wish to eat in the dining commons may pay cash or purchase a meal ticket from the dining commons.
5. Students who officially withdraw receive a refund in accordance with the refund schedule (see Fees and Expenses section).

Jot Travis Student Union

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

The union provides lounges, game room, snack bar, dining commons, faculty-staff dining room, space for banquets and luncheons, three auditoriums (Alumni, ASUN, and Pine) for programs and discussion groups, meeting rooms for campus and off-campus groups, gallery arrangements for exhibitions of paintings, sculptures and prints, ticket sales, check cashing, notary service, foreign travel information and international student I.D. cards, campus-wide lost and found, student, faculty, and staff university I.D. cards and the scheduling for all student activities and events.

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

University Health Service

The health service is located on the ground floor of Juniper Hall which is on Virginia Street just south of the Jot Travis Student Union. General outpatient medical care is provided by full-time physicians and registered nurses. In addition, part-time consultants hold weekly clinics in the fields of dermatology and mental health. Nutritional counseling is provided by senior students majoring in food and nutrition. Clinic hours are 8:00 a.m. to 5:00 p.m., Monday through Friday, during the regular semester and during the summer sessions. Family medicine physicians are on call after hours and weekends. To reach a physician after hours, call 784-6598.

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

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

Commonly prescribed and across-the-counter medications are dispensed for treatment of acute illness and injury. All services provided are free of charge except for special laboratory tests sent to outside medical laboratories. Additionally, students requiring a physical examination for personal needs such as life insurance applications, preenrollment physicals, etc., may have their physicals done at the health service for a modest fee. Numerous other services are available at the health service, i.e., gynecological services, immunizations, and allergy shots are administered when vaccine is provided.

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

The health service provides services during the semester breaks for those students who paid the health service fee for the preceding semester. Students enrolled for any number of credits during the summer session are automatically eligible for care. Students not enrolled during the summer may, upon payments of a special fee, become eligible for summer health care.

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

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

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

Financial Aid[1]

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

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

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

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

Qualifications

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

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

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

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

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

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

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

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

Financial aid eligibility is prorated for transfer students or students who have completed credits at the University of Nevada, Reno.

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

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

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

Loans

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

1. Emergency loans involving small amounts of money for short periods of time, readily available to qualified students for emergencies.
2. University loans are available to qualified students who have completed at least one semester at any University of Nevada System campus for educationally connected expenses while they are enrolled as at least half-time students.
3. Long-term loans on a low-interest basis are available through the university for qualified students under these programs:
   (a) Perkins Loans.
   (b) Stafford Student Loans.
   (c) Nursing Student or Health Professions Loans.
   (d) Health Educational Assistance Loans.
   (e) Supplemental Loans for Students/Parent (PLUS) Loans.

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

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

Grants

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

Student Employment

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

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

Further information may be obtained from the Student Employment Office in Thompson Student Services Center.

The Work-Study Program is available to those entering or returning students who are enrolled on at least a half-time basis who can qualify on the basis of financial need. Under this program students may obtain work in their major areas which relates to their educational or vocational objectives.

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

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

Scholarships and Prizes

All communications concerning scholarships should be addressed to the Office of Student Financial Services, Thompson Student Services Center, Room 200. All applications are due on or before March 1.

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

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

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

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

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

Amounts of Awards

Most scholarships range from $400 to $2,000.00

Type I Awards: These awards are made to students from any division of the university, usually without respect to class level or academic interest. Applications for Type I scholarships are made available in January from the Office of Student Financial Services. March 1st is the deadline to apply.

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 contact the Scholarship Office. It is the policy of the Scholarship Committee to coordinate Type I and Type II awards to prevent overawards of scholarships.

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 Scholarship Office. The Scholarship Office has a limited number of Type III scholarship applications and information about other independent scholarships. Information may be obtained in the Office of Student Financial Services.

Special Prizes and Awards

Each year the university gives a number of prizes and awards to students who have made unique and outstanding achievements. Recipients are selected on the basis of these achievements and not through application.

President's Scholarship ($10,000.00)

To qualify for the President's Scholarship, students must have both high grade point averages and high ACT/SAT test scores.

ACT—31 or above. The high ACT test score must be supported with at least a 3.5 grade point average.

National Merit Finalists will also be considered for the university's Presidential Scholarship.

Registration Fee Grants-in-Aid

1. Each semester the university awards a number of registration fee grants-in-aid equal to approximately three percent of the university's enrollment. Recipients of these grants-in-aid must be residents of Nevada. Those selected are not required to pay the basic registration fee ($11 per credit) 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 coordinator of scholarships, University of Nevada, Reno. Each award is made for one semester and is renewable only following submission of a new application. Applications for fall semester must be received not later than June 1. Recipients must have an overall GPA of 2.0 or higher at the time of award and must complete 12 or more credits with a GPA of 2.0 or higher each semester to be considered for successive awards. Applications for the spring semester must be received not later than January 5.

Out-of-State Tuition Grants-in-Aid

Each semester the university awards a number of out-of-state tuition grants-in-aid. These grants-in-aid are available to undergraduate students only; they are not available for graduate student applicants. The value of the out-of-state grant-in-aid is $1100 per semester. Recipients of these grants-in-aid are not required to pay the nonresident tuition charge. Applications should be directed to the coordinator of scholarships. Each award is made for one semester and is renewable only following submission of a new application. Awards are based upon scholarship proficiency, as well as the rendering of special service to the university. A proportion of these awards is also set aside for students from foreign countries. Applications for the fall semester must be received not later than June 1. Recipients must have an overall GPA of 2.0 or higher at the time of award and must complete 12 or more credits with a GPA of 2.0 or higher each semester to be considered for successive awards. Applications for the spring semester must be received not later than January 5.

Graduate Teaching and Research Awards

To be eligible for a graduate assistantship an individual must first be admitted to the Graduate School and be classified as a graduate standing student in the department or college of study. Application should be made to the dean of the college concerned or the department chair.

1. Graduate Assistant—includes the subcategories of teaching and research assistant, contractual positions for teaching or research services. Stipends may be accompanied by fee and tuition grants-in-aid. The availability of grant-in-aid is clarified with issuance of the contract. A full-time graduate assistantship is based on a 20-hour work week; however, appointments may be offered for less time with salary and grant-in-aid proportional to the commitment of time.

A teaching assistant on appropriated monies is allowed to be on contract for a maximum of three years while pursuing a

Financial Aid Calendar

Type	*Deadline date*
Scholarship applications must be returned to the Office of Student Financial Services by	March 1
Departmental scholarships	Check deadline with college or department concerned.
Regents Grants-in-Aid (tuition and fee waiver applications)	
Fall semester	June 1
Spring semester	January 5
Federally Funded Financial Aid (Loans, Grants, Work)	
Fall, spring semesters and summer terms	February 15*
Stafford Student Loans	Three months prior to time needed.
Emergency loans	During semester in which emergency occurs.
University loans	One week minimum to process.
Deferred-payment of fees, tuition, board and room	Before last day of registration.
Student employment	When class schedule is established and you are available.

*Note: The ACT Family Financial Statement application should be completed and mailed to ACT by this date to allow sufficient processing time so that all forms are received in the Office of Student Financial Services by the April 1 priority funding deadline.

master's degree and five years while pursuing a doctorate. Maximum time for a teaching assistant is six years for a student obtaining both a master's and doctoral degree at the University of Nevada, Reno.

To insure satisfactory progress toward the degree, graduate teaching assistants are required to pass at least 10 graduate credits per year to maintain eligibility for the assistantship.

International students must score 550 or above on the TOEFL examination, or its equivalent, to be eligible for a teaching assistantship.

Graduate assistant stipends vary among the disciplines and are competitive with other universities in the same fields.

2. Graduate Fellow—designates individuals receiving a stipend that would be treated as a scholarship.

Veterans Service—Benefits

Veterans services are administered by the Veterans Office staff located in student financial services on the second floor of Thompson Student Services Center. They are available to assist each veteran in achieving his or her academic goal. Advisement services (pertaining to curricula, admission, and other administrative procedures) are available, as well as information on housing, career counseling, and financial aid. The Veterans Office serves in a liaison capacity with the Department of Veterans Affairs Office in Reno.

The University of Nevada, Reno is fully accredited by the Department of Veterans Affairs for educational benefits to qualified veterans under existing applicable public laws. Discharged veterans, or those currently in service, who plan to attend the university must make application for veterans' educational benefits at the time registration fees are paid.

The university is also accredited for War Orphans and Widows under Chapter 35, Title 38, U.S.C. (a program of financial assistance for the education of men and women whose parents or spouses are deceased or completely disabled as a result of injuries or diseases received during their military service).

Every individual receiving benefits under any of the public laws is required personally to complete the Veterans Educational Benefits Application immediately after payment of fees for each semester, summer session, or other instructional period. This can be done in the registration area or at 203 Thompson Student Services Center. Failure to present the Advance Registration Schedule Fee form when completing the application may delay receipt of educational benefits from six to eight weeks.

It is the beneficiary's responsibility to notify Veterans Office personnel immediately if he/she drops or adds a course, withdraws from the university for any reason, or stops attending any or all classes. Failure to do so will delay monthly checks and subject the student veteran to financial liability for an overpayment or incorrect payment made. If changes in the student's program affect his status (from full- to half- or three-fourths time, etc.), the effective date will be registration day unless mitigating circumstances are accepted by the Regional Veterans Administration.

Student veterans are subject to the university's normal academic standards and are required to maintain *satisfactory progress* toward the VA certified degree objective to continue receiving Veterans Educational Benefits.

The amount of monthly educational subsistence is determined (except for Vocational Rehabilitation Benefits) by: (1) the number of registered credits as certified by the Veterans Office to the Department of Veterans Affairs and, (2) the number of dependents the student veteran claims. Only courses leading to the certified degree objective apply and those courses repeated or audited are not applicable.

All teaching or graduate assistants must obtain a statement from the Academic Personnel Office verifying their precise status as an assistant before seeking certification if they are registering for less than nine graduate credits and desire full-time subsistence.

Tutorial benefits for qualified veterans are administered through the Veterans Office for up to $76 per month for a maximum of 12 months.

Additional information on veterans services and benefits may be obtained by contacting the campus Veterans Office.

Career Advisement

The Career Development Center serves as a centralized link between the student and the professional community, giving students an opportunity to find placement in jobs where they can best utilize their talents. The Career Development staff provides individualized career counseling and job search workshops, including resumé and cover letter writing, video-taped mock interviews, and application techniques. Students who have not declared a major are encouraged to seek career counseling.

A career library is maintained in the Career Development Center so that students may familiarize themselves with corporations and institutions in which they may wish to seek

employment. Potential employers may place information and advertising for their organizations in the office. Job vacancies may also be posted for student use. Also, career planning and placement services are available to alumni, who provide an additional source of experienced employees to campus recruiters.

The university encourages students to establish placement files, containing personal information and references, which are supplied to interested employers upon request. Completion of registration forms and payment of a $5 registration fee establishes the placement file which remains active for one calendar year. This fee entitles the student/alumni to all on-campus recruitment; files are mailed out for an additional $2 per mailing. Reactivation of this file for any subsequent placement year requires payment of an additional $5 registration fee.

Recruitment schedules on campus begin the middle of September and extend through the middle of May. It is important that seniors and graduate students complete their placement registration forms early to allow time for letters of reference to be placed in their files. Placement files which have been inactive for a period of 10 years are destroyed.

This service is available in Thompson Student Services Center, 784-4678.

Student Government and Organizations

GSA (Graduate Student Association)

An organization designed for graduate students.
For further information see Graduate School Section.

ASUN (Associated Students of the University of Nevada)

Student government on the University of Nevada, Reno campus is a strong student voice with delegated authority to assume a responsible leadership role within the university community.

The undergraduate student body of the university is organized into a unified, self-governing body known as the Associated Students of the University of Nevada—the ASUN. This body, an integral part of the university community, recognized by the president and the board of regents, functions under the ASUN Constitution, copies of which are available to all members of the student body at the ASUN office. The ASUN offices are located upstairs in the Jot Travis Student Union.

The areas of responsibility and jurisdiction of ASUN are as follows:

ASUN President: The ASUN president is the chief executive officer, serving as the chairman of the executive council and the fiscal allocations board. The president is also a member of all ASUN committees and a member of many university committees and boards.

Vice President: The vice president serves as chairman of the publications board, grievance board and serves as treasurer for ASUN.

The publications board is composed of one-third of the members of the ASUN senate, as selected by the executive council, the editors of the three major publications, the ASUN president (nonvoting), the publications advertising manager (nonvoting), and nonvoting advisers. The board acts as the legal publisher for three publications, the *Sagebrush* (campus newspaper), the *Artemisia* (campus yearbook), and the *Brushfire* (literary magazine) and allocates the funds for each publication. Student publications provide opportunities for students to develop writing and other skills and provide information services to the university community.

The grievance board is composed of one-third of the senate and acts as a student hearing board for students, faculty and the community. The board hears grievances and then works toward a solution of them. The ASUN vice president also acts as a liaison between student organizations and ASUN.

Director of Programming The director of programming acts as chairman of the programming board. The board consists of the ASUN speaker of the senate and eight other student members, each representing a specific area of programming. The programming board sponsors movies, lectures, concerts, major week activities and other special events. The board is also responsible for establishing policies and procedures which affect student activities, as well as encouraging programming by student organizations.

Fiscal Allocations Board: This committee is responsible for all control of ASUN funds and the initial allocation at the beginning of the fall semester to all programs and boards.

ASUN Senate: The ASUN Senate is the final authority of the ASUN. The senate consists of 20 senators elected from each of the ten colleges. All actions taken by the boards and the program and budget committee must be reviewed and approved by the senate. The senate also reviews and approves groups for ASUN recognition.

Student Judicial Council: The Student Judicial Council is composed of a chief justice, an associate chief justice, and three associate justices. A nonvoting member of the university faculty serves as adviser.

The primary purpose of the council is to provide students with a greater voice and responsibility in maintaining high standards of conduct. Its major function is to hear all cases referred to its jurisdiction—to investigate, adjudicate, and assess sanctions for violations of the Student Conduct Code and the *Rules and Disciplinary Procedures for Members of the University Community.*

Legal Information and Referral Service: This office provides free consultation and referral for cases in the areas of landlord/tenant problems, personal injury, consumer complaints, contract disputes, misdemeanor and felony offenses, bankruptcy, traffic/DUI, insurance, wills and probates, taxes, labor disputes, and domestic matters, as well as on-campus matters.

For more information, contact the ASUN Office, Jot Travis Student Union, (702) 784-6132.

Student Organizations

Students have an opportunity to participate in or apply for membership in over 100 organizations. These include religious, social, scholastic, honorary, service, and recreational organizations, as well as clubs for students in specific fields of study.

Any student organization which wishes to establish an activities program or use on-campus facilities must petition for ASUN recognition. Information regarding this procedure is

available in the ASUN Office through the ASUN vice president. Lists of organizations and information regarding these organizations are available in the ASUN Office. All organizations are required to have a faculty or staff adviser. Membership in student organizations is based upon scholarship, college, class, skills, and interests of the individual student, or on any other basis consistent with the aims of the university. Any practice excluding individuals from membership in groups on the basis of race, creed, color, national origin, age, handicap, or sex is inconsistent with university and ASUN policies.

ASUN is located in the Jot Travis Student Union, (702) 784-6589.

Fraternities and Sororities: There are ten social fraternities and five social sororities at the university.

Social fraternities	*Date founded locally*
Sigma Nu	1914
Sigma Alpha Epsilon	1917
Alpha Tau Omega	1921
Lambda Chi Alpha	1929
Phi Delta Theta	1972
Omega Xi	1978
Tau Kappa Epsilon	1981
Sigma Pi	1983
Pi Kappa Alpha	1986
Delta Chi	1989

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

The Interfraternity Council and the Panhellenic Council coordinate the activities of their respective groups. Information regarding fraternities and sororities and rushing procedures is available from the Greek adviser, Thompson Student Services Center, Room 107, 784-4306.

Student Conduct

Enrollment in the university carries with it obligations regarding conduct. Not only within but outside the classroom, students are expected to conduct themselves in such a manner as to be a credit both to themselves and to the university. They are accountable to the laws governing the community as well as to the policies and regulations of the university and directions of university officials, and they are expected to observe the standards of conduct approved by the university.

The administration of student conduct follows the procedures outlined in the *Rules and Disciplinary Procedures for Members of the University Community*. Copies of the procedures are available in Thompson Student Services Center, Room 107. The procedures are summarized in the *Student Handbook*.

University Policies

I. Academic Standards

The maintenance of academic standards is a joint responsibility of the students and faculty at the University of Nevada, Reno. Freedom to teach and freedom to learn are dependent upon individual and collective conduct to permit the pursuit and exchange of knowledge and opinion. Faculty have the responsibility to create an atmosphere in which students may display their knowledge. This atmosphere includes an orderly testing room and sufficient safeguards to inhibit dishonesty. Students have the responsibility to rely upon their own knowledge and resources in the evaluation process. The trust developed in the maintenance of academic standards is necessary to the fair evaluation of all students.

A. Academic dishonesty is defined as cheating, plagiarism or otherwise obtaining grades under false pretenses.

B. Plagiarism is defined as submitting the language, ideas, thoughts or work of another author as one's original work; or allowing one's work to be used in this fashion.

C. Cheating is defined as:

1. Obtaining or providing unauthorized information during an examination verbally, visually, or by unauthorized notes, books and other materials.
2. Obtaining or providing information concerning an examination, all or in part, in advance of that examination.
3. Taking an examination for another student, or arranging to have someone else take an examination for you.
4. Altering or changing:
   a. test answers after that test has been submitted for grading,
   b. grades after the grades have been awarded, or
   c. other academic records after those records have become official.

II. Alcoholic Beverages

The storage and use of alcoholic beverages is permitted for students 21 years of age or over living in approved university housing, subject to the following conditions:

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

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

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

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

The office of the president has the authority to designate the time and place for special events where alcoholic beverages may be served on the university campus.

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

III. Firearms — Fireworks

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

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

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

D. Students living in residence halls may be permitted to store guns and ammunition in designated areas within residence halls subject to approval by the university police.
E. Occupants of university housing, which includes fraternities and sororities, are within the city of Reno and are subject to city ordinances governing the use of firearms within the city limits.
F. Failure to abide by these rules may result in confiscation of firearms, ammunition and pyrotechnics, and appropriate disciplinary action.

IV. Search and Seizure
A. The university reserves the right for maintenance personnel or authorized university personnel to make entry and inspection of university premises occupied by students for purposes of health, safety, maintenance or repair. Such entry is normally limited to a visual room inspection of the premises. Entry for reasons other than health, safety, maintenance or repair must conform with Section B of this general policy.
B. The vice president of student services may authorize an actual search of university premises occupied by students. Such search is normally limited to instances where reliable information is submitted to the vice president of student services from which it is reasonable to believe that a designated university facility is being used for an unlawful purpose or in violation of university regulations. Searches without prior authorization must conform with Section 3 of the Search and Seizure Policy Guidelines, available in the office of the vice president of student services.

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

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

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

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

Regulations concerning the use and scheduling of university facilities are available in the University Activities Office and the scheduling office.

VI. Sexual Harassment
It is the policy of the University of Nevada, Reno that the sexual harassment of students, employees and users of university facilities is unacceptable and prohibited. This stance is consistent with the university's effort to maintain equal employment opportunity, equal educational opportunity, non-discrimination in programs, services, and use of facilities and the affirmative action program.

Sexual harassment is the introduction of sexual activities or comments into the work or learning situation. Often sexual harassment involves relationships of unequal power and contains elements of coercion – as when compliance with requests for sexual favors becomes a criterion for granting work, study or grading benefits. However, sexual harassment may also involve relationships among equals, as when repeated sexual advances or demeaning verbal behavior have a harmful effect on a person's ability to study or work.

For general policy purposes, sexual harassment may be described as sexual advances, requests for sexual favors, and other physical conduct and expressive behavior of a sexual nature where: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education; (2) submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or (3) such conduct has the purpose or effect of interfering with an individual's academic or professional performance or creating an intimidating, hostile or demeaning employment or educational environment.

In keeping with this policy, the University of Nevada, Reno is undertaking a plan of action to protect employees, students and users of university facilities from sexual harassment and to rid the university of such conduct.

Anyone subjected to suspected sexual harassment should contact the Affirmative Action Office at the university. Contacts are confidential. Formal complaints are handled as a disciplinary matter as outlined in the UNS Code (UNS Code, Chapter 6).

Anyone with other questions or wishing further information about this area should also contact the Affirmative Action Office, Clark Administration Building, 784-1547 or 784-4300.

Proscribed Conduct

1. Rules and Disciplinary Procedures for Members of the University Community

The following forms of conduct, being incompatible with the purposes of an academic community, are prohibited for all members of that community, including but not limited to the faculty and students, and lead to sanctions and procedures as described.

(1) Acts of physical force or disruptive acts which interfere with University of Nevada, Reno activities, freedom of movement on the campuses or freedom for students to pursue their studies, and acts which in effect deny freedom of speech, freedom to be heard and freedom to pursue research.

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

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

(4) The intentional disruption or unauthorized interruption of functions of the system, including but not limited to classes, convocations, lectures, meetings, recruiting interviews and social events, on or off premises of the system.

(5) Willful damage, destruction, defacement, theft or misappropriation of equipment or property belonging to, in

the possession of or on premises occupied by, the system.

(6) Knowing possession on any premises of the system of any firearms, explosives, dangerous chemicals or other instruments of destruction, or other dangerous weapons as defined by the laws of the state of Nevada, without the written authorization of the president of any system institution or the president's authorized agent, unless such possession reasonably relates to duly recognized system functions by appropriate members of the faculty, other employees or students.

(7) Continued occupation of buildings, structures, grounds or premises belonging to, or occupied by, the system after having been ordered to leave by the president of a system institution or the president's designee.

(8) Forgery, alteration, falsification or destruction of system documents or furnishing false information in documents submitted to the University of Nevada System.

(9) Making an accusation which is intentionally false or is made with reckless disregard for the truth against any member of the system community by filing a complaint or charges under this *Code* or under any applicable established grievance procedures in the system.

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

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

(12) Disorderly, lewd or indecent conduct occurring on system premises or at a system sponsored function on or off such premises.

(13) Any act prohibited by local, state or federal law which occurs on system premises or at a system sponsored function on or off such premises.

(14) The use of threats of violence against a faculty member or the faculty member's family in order to secure preferential treatment for grades, loans, employment or other service or privilege accorded by the system.

(15) Any act of unlawful discrimination based on race, creed, color, sex, age, handicap or national origin.

(16) Any act of sexual harrassment when submission to a request or demand of a sexual nature is either an explicit or implicit term or condition of employment or of academic grading, or where verbal or physical conduct of a sexual nature has the effect of creating an intimidating, offensive or hostile work or classroom environment.

(17) Acts of academic dishonesty, including but not limited to cheating, plagiarism, falsifying research data or results, or assisting others to do the same.

(18) Willfully destroying, damaging, tampering, altering, stealing, misappropriating, or using without permission any system, program or file of the University of Nevada System.

(19) Any other conduct which violates applicable stated prohibitions, policies, procedures, rules, regulations or bylaws of a system institution.

2. **Other University Regulations**

The following are subject to disciplinary action:

(1) Conduct which endangers the health or safety of any member or guest of the university community.

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

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

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

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

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

Interdisciplinary and Special Programs

Interdisciplinary and special programs are offered to provide the student with enriched educational opportunities that extend beyond the traditional offerings. Some programs enable students to integrate academic disciplines to study a particular area more directly and effectively. Other programs provide study opportunities in different geographic regions within the U.S. as well as in other countries. Most of the programs are coordinated by faculty advisory boards. The individual designated for each program may be contacted for further information.

Campus Programs

Basque Studies

Minor: An undergraduate minor in Basque studies is offered through the College of Arts and Science in cooperation with the Basque Studies Program of the University Library. The University of Nevada, Reno provides the only Basque Studies Program in the U.S. and has a record of offering Basque courses in the past. The present minor provides the student with an introduction and exposure to one of the unique ethnic heritages of the American West. Requirements include a four semester (14 credit) course sequence in elementary and intermediate Basque (may also be utilized to satisfy the college foreign language requirement), and nine additional credits in the upper-division courses listed below.

	Credits
BASQ 101-102—Elementary Basque	8
BASQ 203-204—Second-year Basque	6
BASQ 451, 651—Introduction to Basque Literature	3
ANTH/BASQ 466, 666—Old World Basque Culture	3
HIST 428, 628—Basque History	3
BASQ 455, 655—Introduction to Basque Linguistics	3

Doctor of Philosophy: An interdisciplinary tutorial Ph.D. program with a major in Basque studies is offered through the coordinated efforts of anthropology, foreign languages and history. The tutorial nature of the program requires the student to complete a plan of study under the direction of a mentor and with the approval of a standing admissions and policy board, a dissertation committee, and the faculty of the academic department concerned. Each student must complete a minimum of one year in residence at the university. There is also the possibility of residence at another American or European university working under the direction of a recognized Basque studies specialist.

Applicants must have completed an M.A. in a relevant academic discipline and satisfy the preapplication screening requirements of the admissions and policy board. The filing date for preapplication screening information to be submitted to the coordinator is February 1 annually. Applicants approved by the screening board must file an official application for admission and supporting documents in admissions and records by April 1. Applicants will be notified by May 15 annually.

A limited number of graduate fellowships may be available.

For further information, contact Dr. William A. Douglass, Coordinator, Basque Studies Program, Getchell Library, Room 274, 784-4854.

Cellular and Molecular Biology

Cellular and molecular biology is an interdisciplinary program offered by the faculty in the School of Medicine and the Colleges of Agriculture and Arts and Science. It is a highly interactive program which draws together a wide range of areas of study that fall under the purview of contemporary cellular and molecular biology. Programs of study are offered that lead to the master of science and doctor of philosophy degrees. Additionally, medical students may earn a M.D./Ph.D. degree through the program. Students who are admitted to the program are expected to have completed the following courses: calculus, four credits; organic chemistry, eight credits; physics, six credits; biology, eight credits. If a student is admitted with a deficiency in these courses, the deficiency must be corrected within the first year of Graduate School.

Candidates for the master of science degree must satisfy all general requirements of the Graduate School and complete a curriculum consisting of 30 credits which include the following: 18 credits of core curriculum, six credits of research and thesis, and six credits of approved electives. Any substitutions of the core curriculum requirements must be approved by the director of the cellular and molecular biology program. A list of approved electives can be obtained from the program office at Room 146 in the Howard Medical Sciences Building.

Master of science core curriculum:	*Credits*
B CH 613—Macromolecules	4
B CH 705—Molecular Genetics	4
CMB 790—Graduate Seminar	2
CMB 701, 702 or 703—Methods in Molecular Biology	6
CMB 794—Colloquium	2

Candidates for the doctor of philosophy degree must satisfy all general requirements established by the Graduate School and complete a minimum of 72 credits which include the following: 31 credits of core curriculum, 24 credits of research and dissertation and 17 credits of approved electives. Substitutions in the core curriculum requirements must be approved by the director of the cellular and molecular biology program. All students must have their curricular programs approved by the director of the program, or when appointed, by an advisory committee. A list of approved electives can be obtained from the program office at Room 208 in the Howard Medical Sciences Building.

Doctor of philosophy core curriculum:	*Credits*
B CH 613—Macromolecules	4
B CH 705—Molecular Genetics	4
BIOL 710—Cellular Physiology OR	3
PHAR 730—Molecular Pharmacology	3
CMB 790—Graduate Seminar	2
CMB 701, 702 or 703—Methods in Molecular Biology	9
CMB/B CH/MICR/PHAR 794—Colloquim	6

Additional Program Requirements

All doctoral students must pass a comprehensive examination in which the student independently proposes a research project in the form of a written research grant proposal. Following acceptance of the proposal by an examining committee, the proposal must be defended orally before the examining committee. All doctoral candidates must present a public seminar of their thesis research and pass an oral defense of the dissertation.

Candidates for the M.D./Ph.D. degree follow the requirements as outlined in the M.D./Ph.D. degree program.

Graduate fellowships are available on a competitive basis. Additional information concerning the program is available by

request from Dr. Stephen St. Jeor, director of cellular and molecular biology, 784-6161, Room 146, Howard Building.

Chemical Physics

Chemical physics is an interdisciplinary program offered by faculty in the College of Arts and Sciences which provides a unified curriculum spanning a wide range of areas within the scope of contemporary chemical physics. A program of study leading to the doctor of philosophy degree is offered. Students who are admitted to the program must be able to satisfy the admission requirements to the Ph.D. program of either the chemistry or the physics department as well as the general admission requirements of the Graduate School. Inquiries regarding admission to the program should be made to the graduate admission chairman of either the chemistry or the physics department.

Candidates for the doctor of philosophy degree must satisfy all the general requirements established by the Graduate School and complete a minimum of 72 credits which include the following: 18 credits of core curriculum, 24 credits of research and dissertation, and 30 credits of elective courses, of which 12 credits may be "Independent Study." Acceptable elective courses include any 600- or 700-level course in physics, chemistry, or mathematics, or any course approved by the student's graduate advisory committee.

Doctor of Philosophy Core Curriculum	*Credits*
CHEM 752—Chemical Kinetics	3
CHEM 755—Statistical Thermodynamics	3
CHEM 757—Quantum Chemistry	3
PHYS 701—Mathematical Physics	3
PHYS 702—Classical Mechanics OR	
PHYS 730—Modern Optics and Laser Physics	3
PHYS 722—Quantum Theory II	3

Additional Requirements

All students enrolled in the program will be required to pass a comprehensive examination consisting of both written and oral parts and which is based on material covered in the core courses listed above. The written part of the comprehensive exam must be taken within one year of the student's completion of the core curriculum (typically, the written exam will be taken by the end of the second year). The oral part of the comprehensive exam will be taken within one week of the written exam. Unsatisfactory performance on the first comprehensive examination may be rectified by re-taking both parts of the exam within six months of the first exam.

Once the comprehensive examination has been satisfactorily completed, the student is expected to pursue a vigorous research program under the direction of one of the affiliated chemical physics faculty. Research areas supported by the faculty span a broad range of both experimental and theoretical chemical physics topics. The student's research program is to culminate in the writing of a dissertation which must be approved by the student's graduate advisory committee before conferral of the degree.

Additional information concerning the program is available upon request from Dr. John H. Frederick, Room 122, Chemistry Building, 784-1347 or 784-6041.

Computer Science

Baccalaureate Programs in Computer Science: These programs are jointly sponsored by the Department of Mathematics and the Department of Electrical Engineering and Computer Science. Two degrees are offered: (1) a *Bachelor of Science in Computer Science* in the College of Engineering, and (2) a *Bachelor of Science* with a major in computer science in the College of Arts and Science.

Students wishing to major in computer science are designated *pre-computer science* upon admission to the university. Upon satisfactory completion of their first two years of studies, students are granted full acceptance into the computer science major.

The program requires 130 credits for graduation. Of these credits, 62 are common to both degrees and are grouped into two areas:

Computer Science Core	*Credits*
C S 183—Introduction to Computer Science I	4
C S 283—Introduction to Computer Science II	3
C S 285—Introduction to Computer Systems	3
C S 333—Computer Logic Design	3
C S 386—Computer Programming Languages	3
C S 387—Introduction to the Theory of Computation	3
C S 485—Computer Data Structures	3
C S 486—Principles of Computer Operating Systems	3
Subtotal	25

Science and Mathematics Core	*Credits*
CHEM 101—General Chemistry	4
MATH 215—Calculus I	4
MATH 216—Calculus II	4
MATH 217—Calculus III	4
MATH 251—Probability and Statistics	3
MATH 330—Linear Algebra I	3
MATH 381—Discrete Mathematics	3
PHYS 201—Physics for Scientists and Engineers I	3
PHYS 202—Physics for Scientists and Engineers II	3
PHYS 203—Physics for Scientists and Engineers III	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
PHYS 205—Physics for Scientists and Engineers Lab II	1
PHYS 206—Physics for Scientists and Engineers Lab III	1
Subtotal	37
TOTAL	62

The university core requirements total 36 credits of which nine credits are satisfied by courses listed above (CHEM 101, MATH 215, PHYS 201). For courses which satisfy the remaining 27 credits see the core curriculum section. For the program requirements specific to the College, see the computer science headings in the sections of this catalog under Department of Mathematics and Department of Electrical Engineering and Computer Science.

Minor: The computer science minor consists of a core of at least six courses comprising at least 19 credits including nine or more upper-division credits in computer science courses taught in the departments of electrical engineering, mathematics, philosophy, computer information systems, or physics. This core covers areas of computer science recognized as fundamental by professional organizations in computing, engineering, and business. Students completing the core have a strong technical foundation upon which to build further expertise in computer science in the directions of either electrical engineering (hardware design and interfacing), mathematics (theoretical computer science, software), or computer information systems (software applications in business). Other disciplines might also be profitably related to computer science.

Minor Curriculum

Required core computer science courses:	*Credits*
C S 183—Introduction to Computer Science I	4
C S 283—Introduction to Computer Science II	3
C S 285—Introduction to Computer Systems	3
C S 333—Computer Logic Design	3
C S 386—Computer Programming Languages	3

Electives: Select at least three credits from the following:	*Credits*
C S 387—Introduction to the Theory of Computation	3
C S 435—Microprocessors	3
C S 437—Computer Graphics	3
C S 485—Computer Data Structures	3
C S 486—Principles of Computer Operating Systems	3
C S 487—Computer Database Management Systems	3
C S 488—Topics in Artificial Intelligence	3
C S 489—Topics in Computer Science	1 to 3
CIS 484—Database Management Systems Analysis and Design	3
CIS 485—Information Systems Analysis and Design	3
CIS 488—Special Topics in Information Systems	3
E E 431—Digital Computer Design	3
E E 439—Advanced Microprocessors	3
MATH 307 (PHIL 326)—Symbolic Logic	3
MATH 381—Discrete Mathematics	3
MATH 481—Introduction to Nonprocedural Programming Techniques	3
PHYS 466—Introduction to Microcomputer Interfacing	3

The computer science minor is administered by an interdepartmental faculty committee. Further information can be obtained by contacting Dr. Edward F. Wishart, Department of Mathematics.

Master's Program in Computer Science: The purpose of the program is to provide an integrated course of study and research leading to the degree of Master of Science with a major in computer science. Members of the program, drawn from the Departments of Electrical Engineering and Computer Science, and Mathematics, share a primary research interest in this field.

The program is concerned with investigation into the fundamental properties of digital information processing systems. Emphasis is placed on algorithms and their implementation by digital computers and also on the design of computer systems, both hardware and software. Current interests of the program faculty include: image processing, computability and complexity, computer aided design and simulation, programming languages, flexible automation, numerical analysis, computer networks, discrete mathematics, computerized algebra, nonprocedural programming, cybernetics, and artificial intelligence.

Normally, a student accepted into the program is expected to have met requirements for a bachelor's degree in engineering, mathematics, or science. It is not necessary that this degree be in computer science. Previous courses and/or experience should include the equivalent of: C S 285—Introduction to Computer Systems, C S 386—Computer Programming Languages, and C S 333—Computer Logic Design. Admission to the program is not granted until these prerequisites are met.

Additional information may be obtained by contacting Dr. Carl Looney, Department of Electrical Engineering and Computer Science, or Dr. Edward Wishart, Department of Mathematics.

Environmental Studies

The university offers a minor in environmental studies under the direction of the Environmental Studies Board. The board is authorized to develop a curriculum of special courses, listed in course offerings under environment, and related courses in various departments. In addition, the board encourages environmentally oriented graduate research based upon any of the conventional disciplines in the academic and professional departments of the university.

The environmental studies minor addresses problems of the environment and of natural resource and energy use, many of which overlap or affect several disciplines. The minor requires 24 credits, of which at least nine must be in upper-division (300-400) courses.

Core Courses

The following courses are required of all students taking minors in environmental studies:

	Credits
ENV 101	3
One of these: ENV 292 (GEOG 292), GEOG 435 (RWF 435), OR RWF 490	3

Additional Environmental Courses

Students taking minors must select at least two courses from each of the following areas of concentration:

Ecological and Physical Principles: BIOL 210, 212, 294; CHEM 100, 101; PHYS 101; AGRO 222 or equivalent courses in the biological, earth or physical sciences or in engineering.

Economic and Social Principles: AGEC 202, 364; ANTH 470; EC 101, 459; HIST 316; ENV 294, ENV 494, or equivalent courses in economic or social sciences.

Environmental Planning and Policy: ENV 292 (GEOG 292) if not taken as a core course; ENV 457 (P SC 457); P SC 336, GEOG 442, 448, 456; RWF 490 if not taken as a core course, ENV 494 (GEOG 434) or equivalent courses concerned with environmental and resource planning and policy.

Students are responsible for any prerequisites that are required for any of the above.

A maximum of three credits in ENV 301 and three credits in ENV 401 may be used toward the minor program. Each of these may be substituted for one course in each of two different areas of concentration as listed above.

The specific courses taken are selected with the approval of the Environmental Studies Board and the student's major department; a board adviser works with the student in designing an appropriate program. In keeping with the interdisciplinary goals of the minor, no student minoring in environmental studies may include more than six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements for the major.

Additional information may be obtained by contacting Dr. Glenn C. Miller, Biochemistry Department, 784-6031.

Ethnic Studies

The ethnic studies program offers an opportunity for students to gain an awareness of the varied cultures, experiences, and contributions of black Americans, Spanish-speaking (Chicano, Latino) Americans, and Native Americans by providing a series of interdisciplinary focal points within the six humanities and social sciences. In addition to the core course (E S 307), courses in ethnic studies are offered in the subject areas of anthropology, English, foreign languages and literatures, geography, history, political science, psychology, and sociology. Such courses are open to any student regardless of major, and are invaluable to an understanding of the American past and present, or to an assessment of the future.

Ethnic studies also offers minor programs in three areas of specialization: black American, Spanish-speaking American, and Native American. Students who choose one of these minor programs must complete nine credits of required courses and nine credits of elective courses in one ethnic specialization. Nine of these credits must be upper division. No student minoring in an ethnic studies area may include more than six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements for the major.

Black American

Required Courses: E S 307; HIST 455, 456.

Elective Courses: ANTH 205, 365; ENGL 345; HIST 447, 448, 449; H EC 438; P SC 205, 453; SHR 372; SOC 205, 379.

Hispanic American (Chicano, Latino)

Required Courses: E S 307; SPAN 222, 441.
Elective Courses: ANTH 205, 425; HIST 343, 344, 345, 346; H EC 438; P SC 205, 415, 453; SHR 372; SOC 205, 379.

Native American

Required Courses: ANTH 362; E S 307; P SC 453.
Elective Courses: ANTH 205, 345, 360, 363, 420, 423; ENGL 345; H EC 438; P SC 205; SHR 372; SOC 205, 379.

The Ethnic Studies Board also sponsors special courses in various departments when possible. These courses may be used as elective courses in the specialty areas. Additional information is available upon request from Patricia Marshall, Education Building, Room 208, 784-4961.

General Studies

The university's bachelor of general studies (BGS) degree program provides interdisciplinary study across the academic disciplines and professional fields. It is designed for nontraditional students whose age, place of residence, academic interest or career objectives dictate the need for an individualized university degree. There is no on-campus resident credit requirement. Degree candidates are assigned an academic adviser to assist in the design of an appropriate course of study. Students who intend to pursue graduate education should contact their adviser regarding the degree's applicability to that goal.

The objectives of the program are:

1. to meet the university's mission as a land-grant university to better serve the general educational needs of the state's citizens;
2. to provide nontraditional students an opportunity to earn a bachelor's degree while maintaining their family and/or employment responsibilities;
3. to provide an opportunity for a degree which encompasses and unites several disciplinary and professional areas; and
4. to provide students an opportunity to build upon the associate of arts and the associate in general studies degrees offered by two-year colleges.

Entrance Requirements

Must be admitted as a regular student.

Program Completion Requirements

1. A minimum of 124 credits must be earned with 40 or more credits in courses numbered 300 or above. A minimum of 45 credits must be completed in university courses (on-campus, off-campus, teleconference or correspondence). Sixty of the 124 total credits must be earned at four-year colleges and universities. A maximum of four credits applicable to the BGS may be earned in RPED activity courses (courses numbered 100-199).
2. A 2.0 cummulative GPA or higher for all courses attempted at the university and an overall 2.0 GPA or higher must be earned.
3. Courses in United States and Nevada Constitutions must be satisfactorily completed.
4. The ENGL 102 requirement must be completed.
5. Three credits of mathematics at the 105 level or higher be completed.
6. Sixty credits must be taken and distributed in the following manner:

Humanities and Fine Arts: (12 credits) ART 116, 117, 214, 257 (three credits only); ENGL 131, 235, 236, 241, 244, 253, 261, 281, 291, 292, 293; FR 221, 223; GER 221, 223; ITAL 221, 223; SPAN 221, 222, 223; HIST 105, 106; MUS 121, 201-202; PHIL 100, 110, 125, 130, 211, 213; THTR 100.

Natural Sciences: (12 credits) ANTH 102; BIOL 100, 101, 103, 160, 201, 202, 208, 212; CHEM 100, 101, 102, 201, 202; ENGR 204; GEOG 103; GEOL 101, 102, 160; HIST 282; MATH 105, 115, 211, 213, 215; PHYS 101, 106, 109, 110, 117, 151-152.

Social Sciences: (12 credits) ANTH 101, 201, 205; C J 110, 120; EC 101, 102; GEOG 106; HIST 101, 102, 111, 281; JOUR 101; P SC 103, 104, 205, 210, 211, 231; PSY 101; SHR 220; SOC 101, 202, 205; SPCM 210; W S 101.

Communication and English Composition: (12 credits) ENGL 101, 102, 321; SPCM 113; CIS 201-202, 251, 253, 261; C S 183, 283, 285, 386; foreign languages through the intermediate level (205-209).

Colleges other than Arts and Science: (12 credits) Use of upper-division courses to fulfill these requirements must be approved by a student's adviser.

Degree to be Granted

Successful candidates are awarded a bachelor of general studies degree. Program information is available from the office of the dean, Division of Continuing Education, Room 335, College Inn.

Gerontology

An interdisciplinary certificate program in gerontology is administered by the Geriatric and Gerontology Center through the College of Human and Community Sciences. Participating colleges and schools include arts and sciences, education, human and community sciences, medicine, and nursing. This program provides students with educational and practical experience to increase effectiveness in working with older adults.

The gerontology certificate may be obtained by students in conjunction with any academic major, by community professionals who work with senior citizens, or by nondegree seeking individuals interested in issues pertaining to the elderly. The 24-credit course of study includes 12 credits of required subjects and 12 credits selected from approved electives emphasizing gerontology. Field study, a vital component of the curriculum, can be earned through field experience or field projects that have been approved by the program coordinator.

For additional information on the gerontology certificate program and current course offerings, call Betty Dodson, gerontology program coordinator, at 784-1689.

Historic Preservation

An historic preservation program is offered through the College of Arts and Science. Historic preservation is a rapidly expanding field devoted to the understanding, recording, preservation, restoration or adaptive reuse of significant objects, buildings, sites, neighborhoods, districts or engineering works which reflect or exemplify a portion of the nation's historic and prehistoric cultural heritage. Particular emphasis is placed on the heritage of Nevada and the American West.

Training focuses upon the principles of historic preservation, the structure and purposes of private, municipal, state and federal programs and agencies, historic preservation laws, guidelines and codes, field research projects and internships with local, state and federal historic preservation agencies. Depending upon the student's major program and interests in a particular subfield of historic preservation, related courses taught in other departments and colleges are utilized.

Students enrolled in the Land Use Planning Policy master's degree program may specialize in historic preservation. A program of study, usually 12-15 credit hours of historic preservation coursework, is required.

Minor

Required courses for undergraduate minor:	*Credits*
H P 400—Principles of Historic Preservation	3
H P 401—Laws and Policies	3
H P 402—History of American Architecture	3
H P 405—Historic Preservation Survey and Planning	3
H P 470—Research Practicum	3
ANTH, ART, BIOL, HIST, H EC 309—Museology	3
H P 475, 480, P SC 341 or L SC 407	3

Additional information is available upon request from Dr. Don D. Fowler, Business Building, Room 501, or phone 784-6851.

Honors Program

The honors program offers talented students additional opportunity for developing their skills and training their powers of observation, thought, and expression. Successful participation in the program gives superior students the personal satisfaction of having met and mastered the most innovative and challenging program the university offers. In accomplishing this, students enjoy a close relationship with their teachers and fellow honors students. Honors students may graduate *cum laude, magna cum laude,* or *summa cum laude* from the university. These marks of distinction indicate the ability to complete independent study and exhibit superior scholarship.

Admission to the program for students beginning their college careers in the fall semester 1989 is by application only. Admission is based on high school grades, test scores, admission essay, and teacher recommendations. Application is made directly to the honors program. (Students who enrolled at the university prior to fall semester 1989, and who wish to pursue an honors study program, should contact Dr. L.C. Hsu, Room 214, Scrugham Engineering-Mines, 784-6691 or 784-6050.)

Honors students complete major and minor fields in addition to their honors courses. The honors course of study is established in consultation with the student's honors faculty adviser. Honors students must maintain a satisfactory grade point average to remain in the program.

Graduation *cum laude* requires a GPA of 3.5 or above; *magna cum laude* a GPA of 3.7 or above with grade of A on the senior thesis or project; *summa cum laude* a GPA of 3.9 or above with grade of A on the senior thesis or project. The GPA requirement must be satisfied by 96 credits or more in courses graded A through F.

The honors program is administered by the Honors Program Board, which evaluates all applications for admission and all applications for graduation with honors.

For additional information contact Dr. Francis X. Hartigan, director of the Honors Program, 101 Lincoln Hall, 784-1455.

Hydrology and Hydrogeology

Academic guidance is administered by an Interdisciplinary Faculty Board comprised of faculty members with teaching and/or research interests in the areas of hydrology, hydrogeology, and water resources. The programs are structured to stimulate professional development of the graduate student by: (1) providing appropriate channels for specialization, (2) broadening knowledge and competence through basic and applied concepts relative to the field(s) of choice, and (3) providing a learning and/or working climate conducive to subsequent professional careers in teaching, research, consulting, and/or administration.

Entering students should have a bachelor of science degree or the equivalent in agricultural engineering, biology, civil engineering, geology, geological engineering, natural resource ecology, or a related field. The master of science degree can be pursued under either Plan A (thesis) or Plan B (nonthesis), and the Ph.D. degree is available for qualified students who intend to pursue a career in teaching or research. Core courses are established by the Interdisciplinary Faculty Board for both the M.S. and Ph.D. programs. Prerequisites for these programs are: mathematics through differential equations, a year of physics, a year of chemistry and a course in fluid mechanics. The graduate degree may be completed through agriculture, engineering or mines.

Residents of Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, New Mexico, Oregon, Utah, Washington, or Wyoming, who qualify under the Western Interstate Commission for Higher Education (WICHE) western regional graduate programs, may be selected under the WICHE program. This program provides an out-of-state tuition waiver for the first year only. A letter must accompany the application stating that the applicant is going to apply for a university grant-in-aid for the WICHE approved program. The state WICHE office from the state of origin must send a letter to the Office of Admissions and Records certifying that the applicant is eligible for the WICHE regional graduate program.

Applications for the program are processed twice a year. For the fall semester, applications and letters of reference must be received by February 15. Letters of acceptance are mailed by March 15. For the spring semester, applications and letters of reference must be received by October 1. Letters of acceptance are mailed by November 1.

Additional information is available upon request from Dr. G. Fred Gifford, program director, Hydrology/Hydrogeology Interdisciplinary Program, Department of Range, Wildlife and Forestry, 1000 Valley Road, Reno, Nevada 89512.

Interior Design Program

Faculty: Casebier, Nissen

The baccalaureate program in interior design combines courses in environmental design, behavioral science, business, art and communications with an interior design core of 49 credits. To obtain the bachelor degree students must complete a total of 128 credits and meet both university and program requirements. A minimum of 50 credits must be completed in upper-division courses.

The curriculum in interior design prepares students for professional careers in residential and/or commercial interior design, education and related fields.

For the course descriptions specific to interior design, see the course offerings at the back of the general catalog. Since many of the courses require completion of prerequisites, students are encouraged to seek academic advisement through the interior design program.

Major:

Interior design core requirements: ..... *49 credits*

INTD 151—Foundations for Design
ADT 105—Architectural Drafting I
ADT 107—Architectural Construction
DFT 131—Introduction to Computer Aided Design
TAM 216—Textiles
INTD 256—Interior Design I
INTD 275—Housing
INTD 350—Space, Light & Color
INTD 353—History of Interiors
INTD 354—Interior Presentation Techniques
INTD 355—Materials & Resources
INTD 358—Interior Design II
INTD 452—Contemporary Design Concepts
INTD 456—Professional Practices for Interior Designers
INTD 459—Interior Design III
INTD 470—Internship

Interdisciplinary expanded field of concentration: ..... *45 credits*

Environmental Design:	*Credits*
H P 400[1] or 402; PSY 333, 405; SOC 376; ART/ANTH/HIST 309; Landscape Design	9
Behavorial Science:	
SOC 101, 342, 371, 391, 393, 480, 494; PSY 435	3
Business:	
MGRS 101, 270, 325, 353, 373, 462; ACC 201, 202	6
Art:	
ART 100,[1] 116,[1] 117,[1] 121,[1] plus six credits studio art and/or art history	18
Communications:	
SPCM 329[1]; JOUR 303[1] or 335; SPCM 315, 410, 411, 412, 428, 435; JOUR 331, 333, 334, 431, 435	9

Minor: Students majoring in another field may minor in interior design by completing the following:

	Credits
INTD 151 (four credits), 353, 355, 452	13
INTD 275, 350, 402 (minimum of two credits), 456	5-6
	18-19

Additional information is available upon request from Professor LuAnn Nissen, Interior Design Program, 521 Business Building, 784-6577/1780.

International Affairs

An interdisciplinary major in international affairs, administered through the Department of Political Science, is offered by the College of Arts and Science with the cooperation of the College of Business Administration. It is designed as an integrated liberal arts program for students desiring both social scientific and humanistic explorations of international cultures and relationships, and for students preparing for careers in business, diplomacy, journalism, or teaching. The latter careers usually require at least a master's or professional degree beyond the bachelor of arts.

Students should complete at least EC 101-102, HIST 106, a course in statistics (ordinarily SOC/PSY 210 or EC 261), and two years of foreign language, as well as other university requirements during the first two years. These requirements enhance the degree and provide vital context and tools. Preparation is also strengthened by completion of such courses as ANTH 101, culture courses from foreign languages and literatures, GEOG 106, 109, HIST 105, PHIL 100, 112, P SC 104, and SOC 204. Additional work in language, ideally certifiable competency, is strongly recommended.

The major includes a required core of 18 credits selected from 10 course options, with at least one course each from economics and political science: EC 301, 410 (approved seminars); HIST 407-408; ENGL, FLL, HIST OR PHIL 301-302 (Ideas, Values, and Cultures-approved topics only); GEOG 446; and P SC 211, 231, 336. Students also select a specialized "advanced track" consisting of 18 additional credits including a required senior research paper prepared under faculty supervision. Current advanced track options include area study concentrations for Asia, Latin America, Soviet/Communist World, and Western Europe, and topical study concentrations for diplomacy, political economy, and peace and security. Students are strongly encouraged to participate in study abroad programs and can include approved 200-level and above courses taken abroad in appropriate advanced track concentrations.

Students are required to complete minors, and are encouraged to select skill-oriented minors in such fields as accounting, foreign language, journalism, or finance.

Programs of study are designed in consultation with the director, Dr. Richard Ganzel, who also approves senior paper topics and the supervising faculty for the research project. Since international careers are demanding, the program is aimed at serious, capable students willing to meet the standards of participating faculty.

Master of Judicial Studies

The Master of Judicial Studies is offered through a cooperative program of the University of Nevada, Reno, the National Judicial College, and the National Council of Juvenile and Family Court Judges. The two judicial organizations are academic affiliates of the university and are located on the campus. The purpose of the MJS program is to provide sitting judges with a coherent theoretical and practical academic experience aimed at giving them more knowledge and tools to use in their courtrooms.

Sitting judges may apply for admission to the program and, if admitted, may pursue one of two major courses of study: one intended for trial judges, the other intended for juvenile and family court judges. The degree requires the successful completion of 32 semester credits in required and elective courses and the writing of an acceptable thesis. Candidates spend a minimum of two summers in residence at the university. For further information, contact Dr. James Richardson, Department of Sociology, telephone (702) 784-6647.

Land Use Planning Policy

A master of science degree is offered with a major in land use planning policy. The program is interdisciplinary and is offered through the cooperative efforts of several departments – agricultural economics, anthropology, civil engineering, economics, geography, political science and range, wildlife and forestry. The Land Use Planning Policy Board manages the program under the administration of the College of Arts and Science. Close liaison is maintained with planning and related personnel in government and industry.

The program requires a minimum of 39 credits. Candidates take 21 credits of core requirements, including computer graphics, statistical analysis, environmental law, and seminars in resource and land use policy, in urban and regional planning and in economics of renewable natural resources.

Beyond the core, the student chooses a field of specialization, for example, planning and administration, environmental policy and law, or historic preservation. In this field, the student takes at least 12 credits in lectures, independent

[1]Required courses.

research, and seminars, and completes a thesis (six credits). An internship is also highly recommended.

Requirements in addition to those for regular graduate standing admission include a minimum grade-point average of 3.0, introductory work in calculus, computer programming and statistics, and reasonable competency in communication. Applications are submitted through the Office of Admissions and Records for evaluation by the Land Use Planning Policy Board, the participating department and its college. Approved applicants must satisfy the requirements of the land use planning policy program and any additional requirements of the specific department and college.

For additional information, contact the chairman of the Land Use Planning Board, Christopher H. Exline, Department of Geography, Room 225, Mackay Science, telephone 784-6995.

Medieval and Renaissance Studies

Medieval and Renaissance studies is a minor for students majoring in anthropology, art, criminal justice, English, foreign languages and literatures, history, mathematics, music, philosophy, political science, psychology, sociology, and speech and theatre. The purpose of this interdisciplinary program is to enable students to understand and explore the culture of the Middle Ages and Renaissance so they may better understand the roots of Western civilization.

Students wishing to minor in Medieval and Renaissance studies must complete a total of 18 credits which must include courses from at least two departments. Twelve of these credits must be earned from courses numbered 300 or above. The courses acceptable toward the minor are listed below in two groups, *Group A* (courses with a predominantly Medieval and/or Renaissance content) and *Group B* (courses of an auxiliary nature). At least 12 credits must be chosen from Group A.

Group A: ART 314, 315, 317, 419; ENGL 271, 272, 412, 413, 417, 418, 451, 453, 454, 458, 460, 461, 464, 465; FLL 458; FR 463, 464, 465, 466; GER 458; HIST 373, 384, 393, 473; ITAL 223; MUS 201; PHIL 212; SPAN 353, 462.

Group B: ART 116, 117; ENGL 235, 292, 337; FLL 292; FR 221, 313; GER 221 and 459; HIST 105, 281, 371, 372, 377, 385, 421; ITAL 221; PHIL 211, 410, 411; SPAN 221, 464, 466, 469; THTR 471.

In addition, several of these departments have courses treating individual authors, artists, themes, etc., as well as independent studies courses. Where the subject matter of such courses is appropriate, they may be used toward fulfillment of the requirements of this minor.

A student minoring in Medieval and Renaissance studies may include a maximum of six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements of the major. To insure cohesiveness in a student's program, courses should be chosen with the help of an adviser and the minor program must be approved by the Medieval and Renaissance Studies Committee.

Additional information is available from Dr. Franco Manca, Frandsen Humanities, Room 205.

Museology Minor

The interdisciplinary program in museology offers students an opportunity to explore the expanding field of museum work and museum research. The museology minor is designed to provide an introduction to the field, an exposure to some of the skills and techniques required of a career museologist, and an initial apprenticeship experience in a museum setting. Today there are roughly 7,000 public museums in the United States, employing career museologists as well as professional curators, exhibit technicians, educators and others. Students contemplating a career in the museum field, or in a discipline such as anthropology, art, biology, geology, history, home economics or historic preservation, or one in federal or state agency service, should find the minor particularly useful. Students choosing this minor must complete six credits in required courses as well as 12 credits in elective courses. Because the elective directions can be many and varied, students and their advisers must consult the chairman of the museology committee for a specific program plan (see below). A student minoring in museology may include in the minor a maximum of six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements for the major. Nine of the total minor credits must be upper division. For additional information, contact Dr. James R. Firby, Chairman, Museology Committee, 784-6050.

Required:	*Credits*
ANTH, ART, BIOL, GEOL, HIST, H EC 309	3
ANTH 480, BIOL 310, HIST 310, H EC 470, or ART 490	3
Additional Electives: ANTH 330, 340, 345, 360, 362, 402, 403, 423, 425; ART 100, 116, 117, 150, 258, 259, 314, 315, 316, 419; BIOL 333, 334, 370, 372, 373, 376, 377, 378; GEOL 101, 102, 160, 211, 212, 461; HIST 281, 282, 315, 371, 372, 384, 403, 404, 473; H EC 151, 152, 315, 353; H P 301, 475	12
	12

Suggested Emphases:

History Emphasis: ANTH 340; HIST 281, 282, 309, 310, 315, 371, 372, 384, 403, 404, 473; H EC 315, 353; H P 301, 474

Science Emphasis: ANTH or BIOL 309; ANTH 480 or BIOL 310; ANTH 330, 340, 345, 360, 362, 402, 403, 423, 425; BIOL 333, 334, 370, 372, 373, 376, 377, 378; GEOL 461; HIST 281, 282.

Exhibits Emphasis: ANTH 330, 345; ART 309 or H EC 309; ART 319 or H EC 470; ART 100, 116, 117, 150, 258, 259, 419; H EC 151, 152.

Religious Studies

The purpose of this interdisciplinary program is to allow the student to pursue, as an object of academic inquiry, such aspects of religious experience as are subject to study without regard to sectarian sentiment or affiliation.

Minor

Students wishing to minor in religious studies must complete a total of 18 credits to include courses from at least two departments and R ST 101, Introduction to Religious Studies. Twelve (12) of these credits must be earned from courses numbered 300 or above. The introductory course (R ST 101) is a prerequisite for 300-level courses unless waived by the religious studies adviser. The courses acceptable toward the minor are listed below in two groups, *Group A* and *Group B*. At least 12 credits must be chosen from Group A; other courses may be selected from Group B.

Group A: ANTH 322; ENGL 268, 335, 337; HIST 317, 318; PHIL 112, 323, B V 264, PSY 350; R ST 101; SOC 333.

Group B: ANTH 338; ART 116, 314; ENGL 292, 333, 339, 340, 453, 464; HIST 105, 371, 372, 373, 403, 404, 427; PHIL 201, 203, 211, 401; SHR 340.

In addition, several of these departments have courses treating individual authors, artists and themes, as well as courses in independent studies. Where the subject matter of such courses is appropriate, they may be used toward fulfillment of the requirements of this minor. A student minoring in religious studies may include a maximum of six (6) credits from

courses in the major department. Such credits must be in addition to those used to fulfill the requirements of the major. To insure cohesiveness in a student's program, courses should be chosen with the help of an adviser and the minor program must be approved by the Religious Studies Committee.

Additional information is available upon request from the chairman of the Religious Studies Committee, Dr. Robert D. Harvey, English Department, Frandsen Humanities, Room 19, 784-6750.

Teacher Licensure

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 licensure by the Nevada State Department of Education. However, proper application must be made to the state office. **New state licensure requirements are met through appropriate courses listed in this catalog under the College of Education.**

Advisement for teacher education programs is offered through the Department of Curriculum and Instruction and the dean of the College of Education, in cooperation with department chairmen and deans of the Colleges of Agriculture, Arts and Science, and Business Administration, and the School of Mines.

The programs for teacher education at the university conform with standards of the National Council for Accreditation of Teacher Education, which are considerably higher than the minimum requirements currently demanded by the Nevada State Department of Education.

Graduates of this or other universities who have not followed the approved teacher education curriculum may obtain information concerning minimum requirements for licensure from the Nevada State Department of Education, 400 West King Street, Carson City, NV 89710. Students who wish to be licensed in another state should obtain a statement of requirements from that state's department of education.

A postbaccalaureate certification program for graduates is offered through the College of Education.

Additional information is available upon request from Dr. Frank D. Meyers, Dean, Education Building, Room 101.

Teaching English as a Second Language (TESL)

The purpose of this program is to provide a course of study leading to the degree of master of arts with a major in teaching English as a second language. The program is interdisciplinary, requiring courses from both the Department of English in the College of Arts and Science, and the Department of Curriculum and Instruction in the College of Education. Students can choose from two track options: (1) TESL in the elementary school, or (2) general TESL. The first track is designed primarily for elementary-level teachers; the second is geared toward working with adult ESL learners. The tracks are equally grounded in theory, and both expect a high level of practical expertise upon completion of the degree program.

The program requires a minimum of 36 credits. Candidates take 18 credits of core requirements, nine of which must be at the 700 level. Required core courses are: ENGL 610, 636, 639, 739; C I 776 and either C I 744, CAPS 700 or ENGL 711. The remaining 18 credits are taken in the student's area of specialization. Students enrolling in Track 1 take the following courses: C I 631, 645, 646, 698, 726, plus three credits of 700-level options such as: ENGL 712, 740, 750. Students enrolling in Track 2 take these courses: ENGL 638, 640, 712, 740, plus six credits of options such as ENGL 750, 789, C I 698 or 726. Upon completion of the program, students in both tracks are required to take a comprehensive written and oral examination.

For regular graduate standing admission to the program, students must have an undergraduate grade point average of 3.0 or higher over the last two years of undergraduate study. Non-native speakers of English are required to have a TOEFL score of 550 or above. GRE scores are required. Contact adviser for details.

For further information, contact Dr. Christian Faltis, TESL coordinator, 784-4961.

Women's Studies

The purpose of this interdisciplinary program is to provide a fuller understanding of the nature and role of women through academic study, to discover and evaluate the accomplishments of women, and to consider the special problems of women in a changing world.

The core course (W S 101) is offered each fall semester and occasionally during the summer session, and is open to all students, regardless of major. Related courses are offered by various departments. In addition, suitable courses offered from time to time may be approved by the women's studies coordinator for inclusion in the minor program.

Students wishing to minor in women's studies must complete the introductory course (W S 101) and a program comprising 15 additional credits (nine in 300 or higher level courses) chosen from the following: ANTH 212; C J 498;* ENGL 267; HIST 497;* H EC 131,* 274,* 315, 333, 341,* 430, 445,* 458; P SC 354; PSY 233;* SHR 320,* 372; SOC 275, 453, 480; SPAN 441;* SPCM 412,* 490;* W S 297, 490, 497.

Students must consult with the women's studies adviser to choose courses suitable to their needs and majors. Additional information is available from Dr. Elaine Enarson, 784-1560.

National Exchange Program

National Student Exchange

The university is a member of the National Student Exchange (NSE). This program provides qualified undergraduate students with an opportunity to become better acquainted with different social and educational patterns in other areas of the U.S. Governed by the philosophy that participation is essential to education, the NSE encourages students to experience new lifestyles and appreciate various cultural perspectives.

Nevada residents may apply for exchange in the sophomore or junior year to one of several regionally accredited state institutions across the U.S. (currently 55 schools participate). A minimum of 2.5 cumulative university grade point average is required and, if accepted, the student pays in-state fees at the school selected.

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

Information and applications may be obtained from Room 103, Thompson Student Services Center.

Western Interstate Commission for Higher Education (WICHE)

The state of Nevada contributes nearly $1 million *each year* in support funds to Nevadans attending out-of-state schools under the auspices of WICHE. Currently, Nevada provides grants to scholars in the fields of *law, physical therapy, occupational therapy, veterinary medicine, dentistry, optometry, library science,* and *pharmacy.*

The recipient selection process is competitive and based upon a composite scoring of grade point averages and admissions test scores. Nevertheless, the application process is quite simple. The only requirement is that the applicant must be a Nevada resident for one year prior to the date of application.

To receive primary consideration, applications must be received by October 30 of the year prior to the year in which enrollment in professional school is planned. Official transcripts must be submitted and the required admissions examinations must be taken before October 30. Applicants who miss the deadline are placed on an alternate waiting list.

Nevada WICHE also has information on Western regional graduate programs which enable Nevadans to pursue graduate studies at out-of-state institutions at resident tuition rates.

Nevada students can now participate in a new tuition reduction program at the undergraduate level. Under WICHE's Western Undergraduate Exchange Program (WUE), Nevada residents can attend 65 public institutions in 12 Western states at 150% of resident tuition rates. There are a number of limitations and restrictions, however. Since this offering is in its early evolution, please call the WICHE office for updates and details.

Applications and brochures may be obtained at the Nevada WICHE Office, located in the Old Gym, Room 107, 784-4900.

International Programs

Basque, French, Spanish, International Business and Economics Study Abroad

University Studies Abroad is a consortium project of the University of Nevada, Reno and four other universities which offers unique programs in Basque, French, Italian, and Spanish studies on three European campuses.

Basque/Spanish Studies

Undergraduate and graduate courses in Basque or Spanish language (all levels), anthropology, history, political science, literature, economics, folkdance, art history, and cuisine are available during the summer, fall and spring semesters. A special dimension of this program allows students to fulfill all university foreign language requirements in only one semester. Excursions and fully integrated living opportunities constitute an integral part of these programs. These programs are located in the seaside resort city of San Sebastian near the Spanish/French border.

French Studies

One or two semesters of intensive French language at the elementary, intermediate and advanced levels are offered. Courses in Basque Studies, French literature, geography, history, and political science are also available. This program is located at the University of Pau in the southwestern city of Pau.

Italian Studies: International Business and Economics

The Turin program introduces students to the economic structure of Italy, the European Common Market, and principles of international business and economics while gaining a working knowledge of the Italian language and a deeper understanding of Italy's culture, history, and arts. This program is located in northwestern Italy in the city of Turin. One or two semesters.

For further information, contact Dr. Carmelo Urza, Getchell Library, Room 274, or telephone 784-4854.

London Study Program

The London Study Program is a unique and challenging overseas experience for University of Nevada, Reno students. Individuals may study at the University of London for a semester as regularly enrolled University of Nevada, Reno students. Students register for all classes prior to departure, pay regular university fees, and earn university credits to apply toward their major and degree. Any financial aid received at the University of Nevada, Reno may be applied toward the cost of the program. Students who have completed 30 semester credits or more with a GPA of 2.0 or higher are eligible to participate. Enrollment is limited.

The American Institute for Foreign Studies (AIFS) provides all the necessary nonacademic support services at reasonable rates to participating students. It is a highly regarded international organization which provides comprehensive overseas study and travel opportunities for students and teachers. AIFS support includes classroom facilities at the University of London, room and board, social activities, cultural events, insurance coverage, and transportation arrangements.

Further information on the London Study Program is available upon request from Dr. Francis X. Hartigan, History Department, 784-6562 or 784-6855.

Max C. Fleischmann College of Agriculture

Bernard M. Jones, *Dean*
Donald R. Hanks, *Acting Associate Dean*

Agriculture is one of the largest national and international industries. More than 20 percent of our nation's work force is employed by the agricultural food industry. The primary goal of the College of Agriculture is to educate people for professional careers in this industry.

The mission of the College of Agriculture is to build human capacity and capability. Central to this mission is the protection, utilization, and management of the soil, water, air, plant and animal resources, the economic vitality of the agriculture industry, the development and implementation of technologies, and the quality of the environment. Of equal importance is a concern with the utilization of food in health promoting human diets and the social and economic well-being of individuals, families, and society.

The College of Agriculture offers the bachelor of science degree with majors in agribusiness, animal science, biochemistry, resource management, textiles and apparel merchandising, and veterinary science.

Instructional Program

The College of Agriculture offers educational opportunities with emphasis in three areas:

Natural and Enviromental Resources—Instructional areas include how plants and animals interact under natural conditions; how to restore damaged environments; how to properly manage fish, wildlife, forests and rangelands; how to evaluate the impact of land use; and how to increase crop productivity without harming the environment.

Agriculture Science—Areas of study include biochemistry, veterinary science, animal and plant science where projects include genetically transferring plant and animal cells; work on cancer-related projects; investigation of subcellular processes; examination of biochemical reactions important to plant and animal life; and development of laboratory procedures for biochemical analysis.

Agribusiness—Interest areas include business management in finance, banking and investments. Course offerings involve economics, budgeting, market analysis, investment strategies, production and price forecasting.

The college provides instructional programs which emphasize practical applications of science, technology, and theory. Excellent field and laboratory facilities are utilized to provide students with realistic educational experiences. Students who participate in the agriculture instructional programs will receive a balanced educational experience which will prepare them for a variety of professional careers in the dynamic agriculture industry or for advanced degree programs.

School of Veterinary Medicine

The School of Veterinary Medicine offers a three-year preprofessional curriculum that prepares students for entrance into the four-year professional program at another campus. Qualified Nevada residents may participate in a program funded through WICHE that allows them access to places reserved for Nevada residents at certain contract schools.

Certificates

The College of Agriculture grants certificates for the successful completion of 75 or more credits toward a baccalaureate degree or for duly authorized short courses or travel experiences. The student must apply for a certificate at the office of the associate dean.

Baccalaureate Programs

The College of Agriculture offers the bachelor of science degree with majors in agricultural economics, agricultural education, animal science, biochemistry, plant science, and resource management. A bachelor of science in education with a major in agriculture is offered jointly with the College of Education. By selecting appropriate options, students may achieve specialization within the major. Each option includes certain required courses plus electives to be selected by the student in consultation with an adviser.

Master's and Doctoral Programs

The College of Agriculture offers nine master of science degree programs. Programs requiring a thesis are available with majors in agricultural economics, animal science, biochemistry, integrated pest management, plant science, resource management, and in the interdisciplinary programs of cellular and molecular biology, land use planning, and hydrology and hydrogeology. Non-thesis programs are available in agricultural economics, animal science, integrated pest management, plant science and resource management. A master of education program in secondary education with emphasis in vocational education is offered jointly with the College of Education. In addition to the above, areas of specialization programs may be developed for the individual student.

The College of Agriculture offers four Ph.D. programs jointly with other colleges including biochemistry (agriculture and medicine), cellular and molecular biology (agriculture, arts and science, and medicine), hydrology and hydrogeology (agriculture, engineering, and mines), and land use planning (agriculture, arts and science, and engineering). Specific information and course requirements are located in the Biochemistry and Interdisciplinary and Special Programs sections of this catalog.

Instructional Departments

Agricultural Economics

Faculty: Champney, Garrett, Harris, Lambert, Markee, Pardew, Pedersen, Narayanan (Ch.), Mooney, Myer, Shane

Undergraduate Degree: bachelor of science
Major: agribusiness, textiles and apparel merchandising
Minor: agribusiness, textiles and apparel merchandising
Graduate Degree: master of science
Major: agricultural economics
Areas of Specialization: production economics, ranch and farm management, agricultural marketing, land and water economics, agricultural policy, price analysis and agricultural business

Agricultural Education and Communications

Faculty: Harper, Haskell, Hill (Ch.), Hoffman, Kirk

Undergraduate Degree: bachelor of science
Major: agricultural education

Animal Science

Faculty: Armstrong, Bailey, Cirelli, Foote, Garner (Ch.), Holcombe, Jones, Judkins, Krysl, Ringkob

Undergraduate Degree: bachelor of science
Major: animal science
Minor: animal science
Graduate Degree: master of science
Major: animal science
Areas of Specialization: animal breeding, meat science, nutrition, reproductive physiology, production, management, and general animal science

Biochemistry

Faculty: Blomquist, Dreiling, Harrington, Heisler, Lewis, Miller, Pardini, Reitz (Ch.), Schooley, Welch, Winicov, Woodin

Undergraduate Degree: bachelor of science
Major: biochemistry
Minor: biochemistry
Graduate Degrees: master of science, doctor of philosophy
Major: biochemistry

Plant Science

Faculty: Ball, Bowman, Condit, Cramer, Devitt, Fernandez, Jensen, Johnson, Maxfield, Seemann (Ch.), Sorenson, Thran

Graduate Degree: master of science, doctor of philosophy (through biochemistry or cell and molecular biology)
Major: plant science
Areas of Specialization: physiology, biochemistry, and molecular biology of cell processes; environmental physiology of plants

Range, Wildlife and Forestry

Faculty: Berger, Burkhardt, Elvidge, Gifford (Ch.), Guitjens, Johnson, Miller, Nowak, Swanson, Tueller, Walker

Adjunct Faculty: Blank, Green, Longland, Rothstein, Svejcar, Tausch, Young

Undergraduate Degree: bachelor of science
Major: resource management
Graduate Degree: master of science
Major: resource management
Areas of Specialization: resource planning and management as they relate to rangeland, forests, wildlife, and hydrology

A master of science and doctor of philosophy is offered in hydrology/hydrogeology as part of an interdisciplinary program with the College of Agriculture, School of Mines, and College of Engineering.

School of Veterinary Medicine

Faculty: Brothers, Hall, Hanks (Ch.), Hudig, Kvasnicka, Nichol, St. Jeor, Taylor
Adjunct Faculty: Walther

Undergraduate Degree: bachelor of science
Major: veterinary science
After completion of the three-year, pre-veterinary medicine curriculum and the university core requirements, students must complete and transfer 32 credits from a professional school to receive the bachelor's degree from the University of Nevada, Reno.

University Requirements

The following are required for all students in the university working toward a baccalaureate degree:

University Core Requirements	*Credits*
Writing	3-6
Mathematics	3
Natural science	6
Social science	3
Fine arts	3
The western tradition	9
Capstone courses	6
	33-36

AGRICULTURAL ECONOMICS (AGEC)

The agribusiness major is designed to provide a student a broad background in business and economics. This program offers flexibility so the student can pursue special interests in natural resources, environmental concerns, or production agriculture. The department also offers a minor in agribusiness.

University Core Requirements	*Credits*
	33-36

Agribusiness Curriculum

	Credits
ACC 201, 202	6
AGEC 211, 213, 270, 310, 313, 314, 350, 425, 428, 470	29
EC 101, 102, 321, 303 or 322	12
MATH 211	3
MGRS 310, 323, 325, 365 or AGEC 315	12
SPCM 113	3
Electives	27
	92

Minor: The minor is designed for students who may not want to major in agribusiness but are interested in supplementing their major with a background in economics.

	Credits
AGEC 202 or EC 102	3
AGEC 211, 310, 332	9
AGEC 315, 322, 411, 421, 422, 423, 428, 466 (choice of two)	6
EC 101	3
	21

The textile and apparel merchandising major is designed to prepare students for entry into management positions related to the merchandising of apparel and other textile and/or fashion oriented goods. The department also offers a minor in textile and apparel merchandising.

University Core Requirements	*Credits*
	33-36

Textile and Apparel Merchandising Curriculum

	Credits
ACC 201, 202	6
AGEC 211, 213, 270	10
EC 101, 102	6
MGRS 310, 312, 323, 325, 367	15
SOC 101	3
SPCM 113 or 329	3
PSY 101	3
TAM 210, 212, 216, 270, 310, 311, 312, 315, 414, 416, 419	27
AGEC 312, 313, 314, 425, 428, 470; MGRS 314, 422, 462, 470, 489; TAM 470	6
Electives	13
	92

Minor: A minimum of 18 credits are required with nine or more in upper-division courses.

	Credits
Required courses: TAM 210, 212, 216, 310, 311,312, 414	15
TAM 315, 416, 419 (select one or more)	9
	18-24

AGRICULTURAL EDUCATION AND COMMUNICATIONS (AGED)

The College of Agriculture and the College of Education have implemented a cooperative agreement to prepare teachers of agriculture. Students who desire to pursue careers as teachers of agriculture should enroll in the secondary education program in the Curriculum and Instruction Department of the College of Education and complete the professional teaching courses in secondary education and occupational education. Students will be required to take a minimum of 36 credits of approved coursework in the College of Agriculture to achieve a major certification to teach agriculture education and a minimum of 24 credits to receive a teaching minor in agriculture education.

For further information and degree requirements, contact either the associate dean for resident instruction of the College of Agriculture or the coordinator for occupational education in the Curriculum and Instruction Department, College of Education.

ANIMAL SCIENCE (A SC)

Students majoring in animal science prepare for careers in livestock production, business, education, research, and services related to livestock. Beef cattle ranching, meat processing and production, livestock extension, university teaching and research, livestock consultants, market livestock analysis, and animal recreationists are examples of some of the professional opportunities available. All animal science majors must complete the Group II core requirements as listed below:

University Core Requirements	*Credits*
	33-36

Group II Core Requirements	Credits
A SC 100, 203, 211	9
CHEM 102, 142, or equivalent	7
AGEC 213, or equivalent	3

Group II Program Requirements

This curiculum is designed to aid students in formulating a plan of study to parallel their specific interests and to provide a sound background in scientific and management principles. Students may follow a course of study emphasizing agribusiness, equine management, livestock production, science, or a combination thereof. **Each program of study must be approved by both the student's adviser and department chairman following completion of 64 credits.**

Lower-division Requirements

Select 12 credits from the following: A SC 162, 163, 200, 201, 206, 208, 280; AGEC 100, 202, 211, 270; AGED 100, 120, 200; AGRO 100, 222; BIOL 201, 202, 208, 212, 251, 290; CIS 250, 261; EC 101, 102; HORT 164; IPM 100; MATH 211, 213, 214, 215, 216; RWF 100, 201; V M 100.

Upper-division Requirements

	Credits
A SC 307—Physiology of the Domestic Animal	3
A SC 309—Physiology of Reproduction	3
A SC 325—Animal Genetics	3
A SC 400—Seminar	1
A SC 406—Advanced Nutrition Management	4
A SC 412, 413, 423, 424 (two out of four courses)	5-6
BIOL 366 or V M 413—Anatomy	3-4

Select 15 credits from the following: A SC 305, 315, 316, 411, 414, 416, 480; A SC 412, 413, 423, 424 (two out of four not utilized for the upper-division requirements); AGEC 310, 312, 313, 314, 315, 322, 332, 411, 421, 422, 423; AGED 332, 341, 360, 371, 410; AGRO 304, 355, 412; B CH 400, 403, 404, 413; BIOL 360, 381, 404, 480, 481; IPM 422; RWF 302, 341, 345, 346, 348, 351, 450, 482, 493, 494; V M 408.

Minor: The minor is designed for non-majors who desire supplemental courses in animal science.

	Credits
A SC 100	3
A SC 203 or 211	3
A SC 307, 309, 325, or 406	9
A SC 412, 413, 423, or 424	3
	18

BIOCHEMISTRY (B CH)

An undergraduate major is offered in biochemistry through the College of Agriculture and the School of Medicine. This program provides the student with a well-rounded general education that emphasizes the biological and chemical sciences and strong specific training in the major field through a se-

quence of standard biochemistry courses during the junior and senior years. A senior thesis is required. A minor in biochemistry is also available.

The bachelor of science with a major in biochemistry prepares students for graduate study, civil service positions, industry and professional fields related to life, health, agriculture and the medical sciences.

The curriculum for majors is shown below. Students interested in the program should contact the Biochemistry Department for advisement.

Biochemistry Curriculum

Freshman Year

	Credits
BIOL 101, 102, 201 or 202	7
CHEM 201, 202 recommended; CHEM 101, 102 accepted	8
ENGL 101, 102	6
MATH 215, 216	8
Electives	3
	32

Sophomore Year

	Credits
AGEC 270 or equivalent	3
CHEM 343, 344	6
CHEM 347, 348	4
PHYS 151, 152	6
PHYS 153, 154	2
SPCM 113	3
W T 201, 202	6
Electives	2
	32

Junior Year

	Credits
B CH 400	4
B CH 417	4
B CH 403, 404	4
CHEM 330	4
CHEM 353, 354 recommended; CHEM 357 accepted	6
MINE 213 or equivalent	2
W T 203	3
Biological science electives[1]	4
Electives	1
	32

Senior Year

	Credits
B CH 407, 408	6
B CH 413	4
B CH 420, 421	2
Biological science electives[1]	4
Electives	10
Fine arts, social science core	6
	32

Minor in Biochemistry

Students majoring in another field may minor in biochemistry by completing the following:

	Credits
B CH 400, 403, 404	8
B CH 413 or 417	4
An additional six credits in any course in the physical sciences (including additional biochemistry)	6
	18

[1]Must be a 300-level course or higher.

PLANT SCIENCE (PS)

The Plant Science Department does not presently offer an undergraduate major. However, the department does offer a number of undergraduate and graduate-level courses which provide students with the opportunity to become familiar with important areas in modern plant biology. Areas of teaching concentration within the department include plant physiology, plant nutrition, molecular biology, integrated pest management, urban horticulture, soil science, plant genetics, and statistics. The department also provides numerous research and laboratory opportunities for undergraduates. This major has been discontinued. Students in this program must complete all graduation requirements and receive a degree by May 1993.

RANGE, WILDLIFE AND FORESTRY (RWF)

The resource management major balances a basic interdisciplinary background with flexibility in career choice. Education for a career in natural resources or hydrology extends the physical, biological, and social sciences by applying analytical skills to diverse problems.

A student may emphasize natural resources or environmental sciences in general or focus on a specific area within natural resources through selection of courses in:

Forest Management—Courses prepare students for careers as managers of forested lands. Emphasis is placed on the socioeconomic and technical forestry principles involved in production and use of the diversified resources of forestlands, including wood, water, wildlife habitat and forage.

Hydrology—Courses are designed to provide a basic background in hydrology. Students learn to monitor water quality and quantity and to determine the impact of land and water management activities on surface and groundwater resources. They are taught how to regulate water movement, classify soils, manage snow, recognize the effects of salts, acids, sediments, heavy metals and nutrients on water quality, perceive the effects of landforms on water, assess the influence of soils, geology and vegetation on streamflow and solve various groundwater problems.

Range Management—Courses provide the diverse background necessary to manage the natural resources upon which livestock and wildlife depend for food and cover. Rangeland management studies include specialization in range plants and ecology, range evaluation methods, and range management principles and practices.

Wildlife Ecology—Courses emphasize aspects of wildlife biology and conservation based on ecological principles. Attention is given to habitat management, wildlife populations, and endangered species under multiple-use programs on public and private lands. Applications to the maintenance of biotic diversity, conservation, and management are stressed.

The target areas correspond to recognized professions in the broad fields of natural resources and hydrology with specific professional and civil service requirements. As a rule, electives can be taken to meet special interests of the student. A student may choose a substantial number of courses in related fields such as business, law, agriculture, economics, or public relations.

The resources management curriculum consists of lower-division courses to meet the university and college requirements. These courses are normally completed during the freshman and sophomore years. Additional core requirements (see below) and professional electives are normally completed during the junior and senior years. The student selects electives in consultation with the adviser.

University Core Requirements	*Credits*
	36

Core Program of Study (Hydrology Excluded)

	Credits
RWF 100—Principles of Resource Management	3
RWF 304—Hydrology for Natural Resources Management	3
RWF 341—Principles of Range Management	3
RWF 345—Range and Forest Plants	5
RWF 351—Remote Sensing of Natural Resources	3
RWF 405—Silviculture and Regional Silviculture	5
RWF 407—Quantitative Range and Forest Techniques	5
RWF 427—Wildlife Habitat Management	3
RWF 493—Range and Forest Ecology	3
RWF 494—Range and Forest Administration and Policy	3
RWF 497—Forest and Range Soils	3

There are 39 credits in the core. Elective courses comprise the balance of credits needed for meeting specific professional and civil service requirements and/or graduation requirements.

For students interested in emphasizing hydrology the following courses are recommended:

	Credits
MATH 215, 216—Calculus I, II	8
C S 183—Introduction to Computer Science	4
Statistics (including AGEC 470)	6
CHEM 102—General Chemistry	4
BIOL 212—General Ecology	3
Physics (PHYS 151, RWF 422)	6
Earth sciences (GEOL 101, AGRO 222)	8
General hydrology (RWF 482)	5
Atmospheric processes (AGRO 431 or GEOG 422)	3
Surface processes (RWF 414, 483 or C E 410)	3
Subsurface processes (including GEOL 484)	6
Water quality (C E 497 or BIOL 420)	3
Water law (C E 415)	3
Business and economics	6

School of Veterinary Medicine

This program provides a basic three-year pre-professional curriculum which satisfies the entrance requirements for the four-year professional curriculum at all of the schools of veterinary medicine with which Nevada has a contract as well as several others. The pre-professional program provides intensive advisement, an internship with veterinary practitioners, and scholarships from the Gordon MacMillan endowment. Selection into the professional program is made on the basis of high academic performance, practical experience in some phase of veterinary medicine, references, motivation, personal interview and results of written examinations.

Students who satisfactorily complete the three-year pre-veterinary curriculum, including the university core and total credit requirements and are accepted into a professional program, may qualify for a bachelor of science from the university after completion of 32 semester credits at the professional school.

Veterinary Medicine Curriculum

	Credits
AGEC 270 or EC 261	3
A SC 211, 325	6
A SC 412 or 413	3
B CH 400	4
BIOL 101, 102, 201, 202, 251	14
CHEM 101, 102, 343, 344, 345	16
ENGL 101, 102	6
HIST 111 or P SC 103	3
MATH 115	5
PHYS 151, 152, 153, 154	8
V M 100	1
Humanities	6
Social sciences	6
Suggested electives: AGEC 202, 213; A SC 100, 424; BIOL 208, 364, 368, 468; SPCM 113; V M 413	

Minimum of 96 credits required.

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 requiting 32 credits). A doctor of philosophy degree is offered in biochemistry. The interdisciplinary doctoral program in hydrology and hydrogeology offered through the College of Engineering encompasses study in the departments of plant science and range, wildlife, and forestry.

The plan of study for each student is developed by the student and the advisory committee. The program must meet the minimum graduate school requirements as stated in the Graduate School section. The student must also meet any additional requirements specified by the advisory committee or the department concerned.

The doctor of philosophy degree is primarily a research degree with a course of study determined by the student and an advisory committee. The program must meet the minimum graduate school requirements as stated in the Graduate School section.

Graduate research assistantships are available. Applications for graduate research assistantships should be submitted to the appropriate subject matter department.

Agricultural Economics Department

The department offers a master's degree in agricultural economics and cooperates with the College of Business Administration in offering an MBA degree with concentration in agri-business. Students interested in pursuing an MBA degree that emphasizes agri-business can contact either the College of Business Administration or the Department of Agricultural Economics.

Graduate study in agricultural economics may be pursued in the following areas of specialization: production economics, farm and ranch management, agricultural marketing, land and water economics, agricultural policy, price analysis, and agricultural business.

Two plans are available to the student pursuing the master of science degree. Plan A requires the writing of a thesis. Plan B involves the writing of a professional paper plus additional coursework in lieu of the thesis requirement.

A minor may be selected from any approved area in the university, including among others, business management, economic theory, technical agriculture and renewable natural resources, political science, psychology, and sociology.

Written and oral examinations are required.

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

Animal Science Department

A master's degree in animal science is contingent upon fulfilling the requirements of the Graduate School and the student's advisory committee. The number and nature of graduate examinations are determined by the student's advisory committee. A master's degree may be obtained either with or without a thesis requirement. A thesis may be written on research completed in animal breeding, meats, nutrition, physiology, production, management, and general animal science.

A nonthesis degree has the following requirements in addition to those required by the Graduate School. Each candidate must have at least five years' professional experience in agriculture related to animal science or complete an approved professional project. This project is selected by the candidate and adviser for approval by the assigned committee. The project is designed to train the individual for increased proficiency in the livestock industry. It may consist of (1) a field study carried out under the direction of the adviser or other appropriate university staff member or (2) the student may work full time in a progressive agricultural program of a nature that involves the student in the administrative role and other activities of the livestock industry. The duration of this project is at least one semester or three months during the summer. Satisfactory completion of the project and a detailed written report of the nature and results of this experience are required. A student may receive a salary under option 2 above. Each candidate must select an approved topic appropriate to his major and write a professional paper incorporating and interpreting pertinent literature. This paper satisfies three graduate (700) credits. The literature review and the report on the professional project may be incorporated into one paper, if appropriate.

Biochemistry Department

Both master's and doctorate-level programs are offered in this department. The plan of study may involve either a major-minor or field of concentration type of program.

Master of Science Degree in Biochemistry: Graduates with a bachelor's degree in the physical or natural sciences including agriculture, having at least three hours each in biology, and organic chemistry, and meeting the requirements of the Graduate School, may be accepted in biochemistry. Before completing the requirements for the master's degree, the student must have completed the following courses or their equivalents: one year of physics; one year of biology, botany, zoology, or physiology; and CHEM 330, 343, 344, 347, 348, 353, 354, 355. In the major-minor option, minors may be pursued in organic, inorganic, physical, or analytical chemistry; nutrition; physiology; botany; zoology; microbiology; genetics; and statistics. Thesis research is required and may be pursued in many areas of biochemistry. Further information may be obtained from the *Graduate Studies in Biochemistry* publication in the departmental office.

Doctor of Philosophy Degree in Biochemistry: The general requirements of the Graduate School must be satisfied by all candidates for the Ph.D. degree. The minimum credit requirements for the major-minor program are:

	Credits
Biochemistry coursework and seminar	24
Biochemistry research and dissertation	24
Minor courses	12
Electives	12
	72

Plant Science Department

Students wishing to pursue an advanced degree in some area of modern plant biology may work under the guidance of the Plant Science Department faculty members for either a master of science or doctor of philosophy degree. Research interests of faculty currently include ion transport, molecular biology of cell wall proteins, photosynthesis, nitrogen metabolism and nutrition, salinity and drought stress, turfgrass biology and RFLP mapping of plant genomes. Research fellowships are available on a competitive basis.

Master of Science Degree: The department offers its own M.S. degree under either Plan A or Plan B. College graduates with some background in the natural and/or physical sciences will be considered for this program. The nature and number of required coursework and examinations will be determined by the student's faculty advisory committee. A student should ordinarily plan two years to complete the master's program.

Doctor of Philosophy Degree: The department does not offer its own Ph.D. degree at the present time. However, students wishing to pursue a Ph.D. in the laboratory of the Plant Science Department faculty members may do so under the auspices of either the biochemistry, cell and molecular biology, or environmental biology Ph.D. programs. A student should ordinarily plan four years to complete the Ph.D. program. The general requirements of the Graduate School must be satisfied by all candidates for the Ph.D. degree, as well as requirements for the specific Ph.D. program selected.

Range, Wildlife and Forestry Department

The research focus of the department is restoration ecology and hydrology in desert and montane environments. Areas of emphasis include applied animal ecology, surface, vadose zone and shallow groundwater hydrology, and applied plant ecology. Restoration ecology and hydrology includes: the management and repair of riparian areas, water utilization and conservation, mining rehabilitation, water quality enhancement through soilwater interactions, wildlife ecology, range ecology, reforestation, fire rehabilitation, maintenance and

restoration of biotic diversity landscape ecology and stabilization, grazing ecology and management, and problems associated with the wildland/agricultural/urban interface. A short description of faculty, their research interest, and current research programs is available from the department chairman.

The master of science degree in resource management may be pursued under either Plan A or Plan B. An overall GPA of 3.0 or higher will insure consideration of admissi program.

Both master of science and doctorate-level available through the University of Nevada, disciplinary hydrology/ hydrogeology program. Fo formation, refer to the Interdisciplinary and Speci section of this catalog.

College of Arts and Science

Ann Ronald, *Dean*

Departments of Instruction: anthropology, art, biology, chemistry, criminal justice, English, foreign languages and literatures, geography, history, mathematics, military science, music, philosophy, physics, political science, psychology, sociology, and speech communication and theatre.

Objectives

The College of Arts and Science, through its undergraduate and graduate programs, offers students the discipline and knowledge of a traditional liberal education. Students are encouraged to develop intellectual curiosity and habits of creative, but disciplined thought.

Through the university core curriculum and other college requirements, the student's education is directed through certain foundational courses in the natural and social sciences, mathematics, the arts, and the humanities. These courses also ensure acquisition of the basic skills necessary to use this knowledge — skills, for example, in the student's own and a foreign language and in following procedures for orderly investigation. Requirements for a field of concentration (major and minor subjects) are intended to equip the student with a deeper understanding of at least one body of knowledge, sometimes in preparation for a profession or for advanced study.

Requirements for the Baccalaureate Degree

A candidate for a bachelor's degree in the College of Arts and Science must earn a minimum of 128 credits in required and elective courses. Each candidate must complete:

1. The requirements listed under Prescribed Courses for Arts and Science Majors.
2. Courses totaling 40 credits or more in courses numbered above 300.
3. The requirements for a field of concentration (major and minor subjects), usually 50 credits. The particular grouping of courses depends on the particular educational goals of the student but must be in accord with departmentally sponsored fields of concentration or cross-disciplinary fields outlined in this catalog.

It is advisable that students plan their work for their junior and senior years as early as the sophomore year, sometimes as early as the freshman year, in order that the studies then elected may fit in with their work later. At the beginning of the junior year, each student, in consultation with the adviser and with the approval of the chairman, should submit to the office of the dean a written notice selecting a field of concentration (major and minor subjects); such selection requires approval of the chairman of the department sponsoring the field of concentration.

The remaining credits necessary to make a total of 128 in the chosen course of study may be freely elected from any department in the university.

Candidates for graduation must submit an application for graduation to the dean of the College of Arts and Science at the beginning of the final semester before graduation.

Prescribed Courses for Arts and Science Majors:

1. Satisfactory completion of the university core curriculum.
2. Bachelor of arts and bachelor of science degree programs require the successful completion of a fourth semester college course in a foreign language, or evidence of equivalent proficiency as determined by placement examination, or other means, by the department of foreign languages and literatures. A student who successfully completes the fourth year course of a foreign language in high school satisfies the requirement. The foreign language requirement is a departmental option for other bachelor degrees and for the bachelor of science degree with an expanded field of concentration (64 or more credits required in the major and minor/related field). Information on the few programs with a departmental option may be obtained from those departments or from the office of the dean of the College of Arts and Science.
3. Arts and science majors also must complete (a) a second social science course from the core curriculum list (this course must be from a different department than the student's first social science course), and (b) a course in literary traditions (the courses that will satisfy this requirement will be developed during the 1990-91 academic year). As in item two above, this requirement is a departmental option for those programs with an expanded field of concentration.

Major and Minor Programs: In most cases the college requires that students specialize in at least two areas. This is normally accomplished by completing a major and a minor or a dual major. Students who seek a *dual baccalaureate degree* with one or both degrees in the College of Arts and Science are required to fulfill all college requirements. A dual degree requires the completion of a minimum of 32 credits beyond the requirements for the first degree. In Arts and Science it is expected that a student seeking a dual baccalaureate degree will specialize in a minimum of three areas, completing the two majors and at least the equivalent of one minor. By their junior year, students should declare a major by filing a field of concentration form. The field of concentration may consist of a major only, for some departments or programs (see biology, chemistry, criminal justice, geography, mathematics, music, computer science, physics), or a major interest area and a minor interest area for other departments. Majors are offered in each department in the College of Arts and Science, except military science and in prelegal studies. Approved minors exist in most departments within the college, in interdisciplinary programs, and some departments outside the college.

1. The requirements for most fields of concentration consist of major requirements and minor requirements. The total number of credits in the combined major and minor programs may not exceed 54 credits. For departments requiring a major only, the field of concentration includes courses required in the

department and specific courses required in other fields which together constitute between 45 and 54 credits.

2. Students have the option of completing a minor program if they wish, even if a minor is not required for completion of the field of concentration.

3. The completion of an approved minor is recorded on the student's permanent record at the time of graduation.

4. Minor programs in the same department as the major are not accepted, except in English, foreign languages and literatures, and speech communication and theatre.

5. With justification, a student may petition the dean through the department to have a special related field substituted for a required minor. The special field, however, is not recorded on the student's transcript as a minor.

Approved Minors: Minor interest areas that may be used for the field of concentration, or completed by a student within the college, are listed below. A description of the required courses for each minor may be found under the heading of the appropriate department or interdisciplinary program that offers the minor. Accounting, anthropology (cultural anthropology, archaeology), art, Basque, biology, chemistry, child/family, computer sciences, criminal justice, business administration and economics, English (literature, language and linguistics, dramatic literature, English as a second language, writing) environmental studies, ethnic studies, French, geography, geology, German, historic preservation, history (general history, American history, European history, Third World History), journalism, mathematics, medieval and renaissance studies, museology, music, nutrition, philosophy, physics, political science (general, foreign affairs, public administration, American government, public policy), psychology, recreation and physical education (recreation and physical education, dance), religious studies, social and health resources, sociology (general sociology, applied sociology), Spanish, speech communication and theatre (speech communication, theatre), women's studies.

Suggested Curriculum for First Two Years: In order that these requirements may be used to the best advantage in assuring a well-balanced curriculum and at the same time give the student some freedom of choice in the selection of courses, the following course of study is recommended for the first two years. Because of the variation in the language and additional general education requirements, each lower-division student should consult with the assigned adviser and the appropriate official of the Department of Foreign Languages and Literatures for proper advisement.

Freshman Year

(16 credits per semester)	Credits
ENGL 101, 102	6
Foreign language, mathematics	11-13
Other core curriculum courses	3-6
Electives or major/minor courses	7-12

Sophomore Year

(16 credits per semester)	Credits
Foreign language	4-6
Western tradition	6-9
Other core curriculum/college requirement courses	6-9
Electives or major/minor courses	8-16

General Regulations: Except as otherwise specified, all students, including transfer students, must fulfill the foregoing requirements before the bachelor's degree may be received from the College of Arts and Science.

In addition to the graduation requirement of the university that every student must have an average of two grade points for each credit registered, the College of Arts and Science requires that each of its students earn a GPA of 2.0 in both the major and minor interest portion of a field of concentration.

The college's policy on S/U courses conforms in every respect to the university policy, but with the restriction that courses taken for S/U credit may not count toward the field of concentration (major and minor subjects) except upon the recommendation of the adviser and department chairman with the approval of the dean.

Graduate Study

Graduate programs leading to the degrees of master of arts or master of science are offered in anthropology, atmospheric physics, biology, chemistry, computer science,[1] English, English as a second language, foreign languages and literatures (French, German, Spanish), history, mathematics, music, philosophy, land use planning,[1] physics, political science, psychology, public administration and policy, speech communication, teaching of English, and zoology.

The doctor of philosophy degree is offered in anthropology, Basque studies, biology, cellular and molecular biology,[1] chemical physics, chemistry, English, history, physics, political science, psychology, and social psychology.

Further information on all programs may be obtained from the chairman of the department concerned.

Program for Adult College Education (PACE)

The College of Arts and Sciences' Program for Adult College Education offers an innovative way to earn an undergraduate degree for students who are unable to do so through the traditional class schedule. Students who work and have family responsibilities can earn a bachelor's degree in four to six years with a curriculum that integrates courses from the humanities and fine arts, social and natural sciences, and schools other than arts and science. PACE offers an alternative scheduling of courses leading to the Bachelor of General Studies degree. PACE blocks, however, are open to students in other major programs who need weekend or evening courses.

Students may register for six or twelve credits in blocks of related courses usually arranged under themes such as "Women's Studies," "Environmental Studies," or "Studies in American History and Culture."

A typical six-credit block consists of a four-hour meeting one night a week for 15 weeks, or four weekend sessions, and an independent study segment requiring an additional 26 hours of outside study per semester. A 12-credit block would consist of two six-credit blocks.

PACE completion requirements are the same as those for the university's Bachelor of General Studies degree (see "General Studies"). For further information, contact Dr. Mary Stewart, director of the PACE program, 631 Business Building, 784-1465.

[1]See Interdisciplinary and Special Programs for further information.

Prelegal Curricula in the University

Law schools neither prescribe nor encourage any specific undergraduate major. A broad general education with emphasis on courses that develop clear and systematic thinking is better preparation for the study of law than is specialized study in subjects closely related to the law. Most important for prospective law students is that they develop their command of the English language and their ability to communicate ideas clearly, logically, and critically.

Students should read the catalogs of law schools in which they are interested and the "Preparation for Law School: Prelaw Study" sections in the *Prelaw Handbook* for more detailed discussion of the general education program recommended by legal educators.

Students select approximately 40 credits beyond the major of their choice; that is, prelaw students must meet the regular requirements of their major plus selected courses to a total of 70 credits. Several departments have prelegal advisers. For general information contact the chairman, Political Science Department, 138 Mack Social Science Building.

ANTHROPOLOGY (ANTH)

Faculty: d'Azevedo (Emeritus), Bouttê, Fliess, C. Fowler, D. Fowler (Ch.), Hardesty, Haynes, Jeanne, Winzeler
Adjunct Faculty: Elston, Hattori
Cooperating Appointments: Liljeblad, Pippin, Simmons, Wigand

The department offers courses leading to the degrees of bachelor of arts, master of arts, and doctor of philosophy.

Bachelor of Arts Degree

Major Interest Subject	*Credits*
ANTH 101, 102, 200 or 201, 202, 312, 405, 440	21

In addition, all majors must take at least one course from each of the following four groups (one course must be in a geographical area):

	Credits
1. Archaeology—ANTH 400, 401, 402, 403, 404, 409, 423, 424, 425	2-3
2. Physical Anthropology—ANTH 431, 435, 436	3
3. Linguistics—ANTH 405, 414, 415, 416, 420, 429	3
4. Cultural Anthropology—ANTH 210, 312, 330, 345, 406, 440, 452, 460, 461, 462, 467, 470, 489, 491, 494	3
	32-33

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Anthropology accepts any minor approved by the College of Arts and Science.

Both museology and historic preservation are approved areas of study for anthropology majors. See Interdisciplinary and Special Programs section for description.

Minor in Anthropology

Students majoring in another field may minor in anthropology by completing the following:

Minor Interest Subject (Cultural Anthropology)	*Credits*
ANTH 101, 102, 200 or 201	9
At least one of the following geographical area courses: ANTH 461, 462 467, 489	3
Additional courses to be selected from: ANTH 210, 312, 345, 429, 406, 440, 460, 491, 494	6
	18

Minor Interest Subject (Archeology)	
ANTH 101, 102, 202	9
Additional courses to be selected from: ANTH 400, 401, 402, 409, 423, 424, 425	9
	18

Master of Arts Degree

Applicants for admission to the program must satisfy all admission requirements of the Graduate School.

Two plans are available: Plan A (thesis), or Plan B (nonthesis) as described in the Graduate School requirements. Under the Plan B option, however, submission of a professional paper is required.

The department is closely associated with the Historic Preservation program and participates in the master of science degree in land use planning policy, described elsewhere in this catalog.

A limited number of teaching fellowships and research assistantships are offered. Further details may be obtained from the dean of the graduate school or the chairman of the department.

Doctor of Philosophy Degree

Applicants for admission to the program must satisfy all requirements of the Graduate School and the following departmental requirements: (1) have a master's degree in anthropology, or 30 or more graduate credits in anthropology at a university having an accredited anthropology program; (2) provide to the Department of Anthropology four letters of recommendation from university instructors and professional colleagues who can assess the applicant's qualifications for doctoral-level work; (3) indicate which of the three areas of emphasis (see below) the applicant wishes to pursue; (4) meet other requirements specified by the department's doctoral program committee. Application for admission should be made on or before April 1 for admission to the fall semester and on or before September 1 for admission to the spring semester. Only those whose application materials indicate a high level of competency, and motivation, for doctoral-level work are admitted.

All students entering the program are admitted on a probationary basis, pending satisfactory completion of qualifying examinations which must be taken during the first semester of residency. The student must maintain a minimum 3.5 GPA in all courses and be accepted to candidacy by the graduate committee at the end of the first year of residency.

The student must demonstrate a current reading knowledge of a foreign language that has a substantial scholarly literature, as specified by the departmental doctoral program committee. The department reserves the right to require a second foreign language if the student's dissertation research and career goals warrant it.

The doctoral program is designed to provide training in three sub-fields of the discipline: (1) environmental archaeology; (2) historical archaeology, and (3) cultural anthropology (including anthropological linguistics and ethnohistory). The geographic emphasis for dissertation research is restricted to Western North America, including Mexico, with a particular focus on the Great Basin. The program emphasizes the research strengths of the University of Nevada, Reno Anthropology Department, Basque Studies program, and Desert Research Institute faculties. A major feature of the program is an emphasis on tutorial course work.

ART (ART)

Faculty: Adams, Davidson (Ch.), Goin, Martinez, McCormick, Morrison, Rosenberg, Sarich, Unterseher

The department offers courses leading to the degree of bachelor of arts.

Major Interest Subject	*Credits*
ART 100, 121	6
ART 221, 222, 321 or 135, 235, 236 or 150, 250, 251 or 163, 263, 264 or 175, 275, 276 or 185, 285, 286	9
ART 116, 117 and one additional art history course	8-9
ART 403	2
Art courses numbered 300 or above, chosen with the approval of the adviser and dean	12
	37-38

It is recommended that art majors with a two-dimensional concentration elect either ART 163 or 175, and those with a three-dimensional concentration elect ART 135 sometime during the early parts of their programs.

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Art accepts any minor approved by the College of Arts and Science.

Minors

Students majoring in another field may minor in art by completing one of the following:

Minor: Art Studio	*Credits*
ART 100, 121, 116, and 117	12
Nine credits from ART 135, 150, 163, 175, and 185	9
	21

Minor: Art History	*Credits*
ART 100	3
One studio course selected from: ART 121, 135, 150, 163, 175, and 185	3
ART 116, 117	6
Three additional courses selected from ART 314, 315, 316, 317, 318, 417, 418, and 419	9
	21

Minor: Photography	*Credits*
ART 100, 150, 250, 251, 350, 355	18
One additional upper-division course in photography	3
	21

Options

Option: Ceramics	*Credits*
ART 100, 116, 163, 175, 275, and 276	18
One additional upper-division course in ceramics	3
	21

Option: Painting	*Credits*
ART 100, 117, 121, 135, 235, and 236	18
One additional upper-division course in painting	3
	21

Option: Printmaking	*Credits*
ART 100, 121, 185, 285, 286, and 384	18
One additional upper-division course in printmaking	3
	21

Option: Sculpture	*Credits*
ART 100, 116, 163, 175, 263, and 264	18
One additional upper-division course in sculpture	3
	21

For further information, please contact the Department of Art.

Secondary School Teacher Licensure: Students in the College of Arts and Science majoring in art may work toward licensure 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 E L 210; CEP 330, 400; C I 401, 457 (student teaching); and ART 346—Art Education: Secondary Schools, in addition to the departmental major.

A teaching minor concentration is available to students engaged in securing a major other than art. It consists of approximately 26 credits, most of which are prescribed.

BIOLOGY (BIOL)

Faculty: Baker, Brussard (Ch.), Gubanich, Jenkins, McCracken, Mead, Ort, Prusso, Rust, Tibbitts, Vig, Vinyard

The department offers courses leading to the degrees of bachelor of science, master of science, and doctor of philosophy.

Bachelor of Science Degree

All biology majors complete a common core of required biology courses and required related courses, and then select a group of elective courses constituting a field of specialization.

Biology majors are exempt from the arts and science foreign language requirement.

Required Biology Courses	*Credits*
BIOL 101, 102, 201, 202, 208, 212, 290	19

Required Related Courses	*Credits*
CHEM 101, 102, 142, 143 or 343, 344, 345	4-16
MATH 115, 213, 214	11
PHYS 151, 154	8
	31-35

Upper-division Life Science Courses	*Credits*
Selected in consultation with adviser	21
Programs of study are available in: General biology education, ecology (recommended elective AGEC 470), cell biology (recommended elective BCHM 400), pre-health (recommended electives BCHM 400, 9 credits behavioral science). Students may also arrange with their adviser to develop an individualized program of study in other fields of specialization.	
	71-75

Minors in Biology

Students majoring in another field may minor in biology by completing 18 credits in biology. A minimum of nine lower-division credits must be chosen from the core courses listed for biology majors and a minimum of nine upper-division credits must be chosen in consultation with the Biology Department minor adviser.

Master of Science Degree

The Department of Biology offers graduate programs leading to the master of science degree in biology, botany and zoology, to include an emphasis on ecology or genetics and developmental biology. Two plans are available: (A) thesis, or (B) nonthesis. Further details may be obtained from the dean of the Graduate School or from the 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 doctoral degree at the university.

Minimum Credit Requirements:	
Course credits	48
Credits for research and dissertation	24
	72

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

CHEMISTRY (CHEM)

Faculty: Baglin, Burkhart, Corcoran, Fickes, Frederick, LeMay, Lynch, Lightner, Morgan, Nelson, Rose, Scott, Sheridan, Shin

The department offers courses leading to the degrees of bachelor of science, master of science, and doctor of philosophy.

Bachelor of Science Degree

The bachelor of science in chemistry is a professional degree certified by the American Chemical Society; students are prepared for graduate study, civil-service positions, and industry.

The field of concentration in chemistry provides basic training for other professions; graduates usually can enter the chemical profession if the recommended upper division chemistry courses are taken. Students planning to pursue a career in medicine or dentistry may enroll in this program.

Bachelor of Science in Chemistry

Freshman Year

	Credits
CHEM 201-202 recommended (CHEM 101-102 acceptable)	8
ENGL 101, 102	6
MATH 215-216	8
Social science and fine arts core courses	6
W T 201	3
	31

Sophomore Year

	Credits
CHEM 343-344	6
CHEM 347-348	4
MATH 217, 320	6
PHYS 201-202 recommended (PHYS 151-152 acceptable)	6
PHYS 204-205 recommended (PHYS 153-154 acceptable)	2
GER 101-102 (or equivalent courses in French or Russian)	8
	32

Junior Year

	Credits
CHEM 330	4
CHEM 353-354	6
CHEM 355	2
CHEM 387	1
Chemistry electives (four of the following courses required, including one laboratory course: CHEM 434, 442, 443, 450, 456, 461, B CH 400, 403); related electives (chemistry, biochemistry, physics, mathematics or related areas: 300/400-level courses. Courses in computer programming	9
GER 205-209 (or equivalent courses in French or Russian)	4
W T 202-203	6
	32

Senior Year

	Credits
CHEM 415	3
CHEM 497	2
Chemistry electives (four of the following courses required, including one laboratory course: CHEM 434, 442, 443, 450, 456, 461, B CH 400, 403)	7
Required electives (chemistry, biochemistry, physics, mathematics or related areas: 300/400-level courses. Courses in computer programming)	15
Capstone courses	6
	33

Bachelor of Science with Field of Concentration in Chemistry

Freshman Year

	Credits
CHEM 201-202 recommended (CHEM 101-102 acceptable)	8
ENGL 101-102	6
PHYS 151-152	6
PHYS 153-154	2
MATH 215	4
Core courses (social science and fine arts)	6
	32

Sophomore Year

	Credits
CHEM 343-344	6
CHEM 347-348 recommended (CHEM 345 acceptable)	4
MATH 216	4
W T 201, 202, 203	9
Foreign language	8
	31

Junior Year

	Credits
CHEM 330	4
CHEM 353-354	6
Chemistry electives (three of the following courses required, including one laboratory course: CHEM 355, 415, 434, 442, 443, 450, 456, B CH 400, 403)	6
Related electives (chemistry, biochemistry, physics, mathematics or related areas; 300/400-level courses; courses in computer programming)	13
Foreign language	4
	33

Senior Year

	Credits
Chemistry electives (three of the following courses required, including one laboratory course: CHEM 355, 415, 434, 442, 443, 450, 456, B CH 400, 403)	6
Related electives (chemistry, biochemistry, physics, mathematics or related areas; 300/400 level courses; courses in computer programming)	20
Capstone courses	6
	32

In addition to the foregoing, all the general requirements of the College of Arts and Science must be satisfied; this includes 16 credits in humanities and social science courses.

Minor in Chemistry

Students majoring in another field may minor in chemistry by completing a minimum of 20 credits which must include an organic chemistry laboratory course of two credits and nine upper-division credits in chemistry. A maximum of two credits of CHEM 387 and 391 may be applied to make up the nine upper-division credits.

Master of Science Degree

Candidates for the master of science degree with a major in chemistry must satisfy the general requirements of the Graduate School. Of the 24 credits required, 12 (including two

credits of seminar) are in the major, six are in the minor, and the remaining six are elective. A reading knowledge of a foreign language is required. Options in the Department of Chemistry include organic, inorganic, physical chemistry, and biochemistry.

Doctor of Philosophy Degree

The general requirements of the Graduate School must be satisfied by all candidates for the Ph.D. degree. The minimum credit requirements are:

Total credits	72
Formal course credits in major	12
Independent studies	12
Dissertation	24
Seminar	4
Electives	20

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 chemical physics, inorganic, organic, physical, and biochemistry. The minor may be taken in another department, such as physics or mathematics, if desired. Every student's program is subject to the approval of an advisory committee.

The graduate curriculum, with its research orientation, provides for an advanced study of theoretical concepts, the methods used to establish these concepts, and the means by which basic observations are made. Emphasis is placed on ability to make valid and relevant observations, to correlate the established facts, and to deduce warranted conclusions and generalizations. A problem in laboratory research is used to determine whether or not the student has the capacity to contribute to the advancing knowledge of chemistry. For further information, contact the chairman of the Department of Chemistry.

CRIMINAL JUSTICE (C J)

Faculty: Braunstein, Peak (Ch.), Stitt

The bachelor of arts in criminal justice is a professional program. Students are educated for justice or justice-related positions in both the public and private sectors, graduate study, and law school.

Bachelor of Arts in Criminal Justice

At least 15 credits of required criminal justice courses must be completed at the University of Nevada, Reno.

Major Interest Subject	*Credits*
C J 110, 120, 211, 220, 231, 312, 320, 326, 410	27
PSY 101, 441	6
SOC 101 and 366, or C J 366	6
ENGL 321	3
SPCM 113	3
	45

Minor in Criminal Justice

Students majoring in another field may minor in criminal justice by completing one of the following:

Option: Corrections	*Credits*
C J 110, 220, 231, 410	12
C J 326, 328, 331, or 332	6
	18

Option: Law	*Credits*
C J 110, 120, 220, 410	12
C J 320, 328, or 420	6
	18

Option: Police	*Credits*
C J 110, 211, 220, 410	12
C J 312, 324, or 328	6
	18

ENGLISH (ENGL)

Faculty: Baker, P. Boardman, K. Boardman, Brown, Brownell, Burgess, Calabrese, Cronan, DuPree, Fenimore, Francis, Haddawy, Harvey, Hettich, Hieke, Howard, Jacobsen, Kearns, Merrill (Ch.), Pahmeier-Henry, Reid, Ronald, Stookey, Swingrover, Urie, Waldo, Webb, Wilborn

Bachelor of Arts Degree

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

Literature Option

	Credits
ENGL 281, 295, 296, 451, 465	15
Additional courses to be selected from ENGL 305-306, 307-308, 405-406, 407-408 (a total of no more than six credits), and other courses numbered above 400 — excluding 414, 415, 416, 419, 435, 436, 437, 438, 439	17

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. English accepts any minor approved by the College of Arts and Science.

Language and Linguistics Option

	Credits
ENGL 281, 404 or 415 or 416, 410	9
ENGL 411 or 414, 413, 417, 451	12
Additional courses to be selected from ENGL 295, 296, 293, 316, and any course numbered 400 or above	11

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. English accepts any minor approved by the College of Arts and Science.

Secondary Teaching Option

	Credits
ENGL 281, 295, 296, 321, 410, 411 or 413, 441 or 444 or 445 or 446, 465	24
Additional courses to be selected from courses numbered above 400	8
	32

Requirements for Licensure In Secondary Education: (18 credits). See "Foundations for Secondary Teaching" in College of Education section.

Students planning to teach in the secondary schools should normally be prepared in a second teaching subject. See "Secondary Teaching Field" under College of Education.

Second Teaching Subject (Minor)	*Credits*
(Program for teachers selecting English as a minor teaching subject)	
ENGL 281, 295 or 296, 321 or 437, 410	12
Two courses to be selected from the 400-level courses, one in both American literature and English literature	6
	18

Students thinking of majoring in English are strongly advised to take 281, 295, and 296 no later than the sophomore year, and 295 and 296 by no means later than the second semester after declaring the major.

Minors in English

Students majoring in another field may minor in English by completing one of the following options:

Literature Option	*Credits*
Required: ENGL 295 or 296, 465	6
At least three credits from ENGL 235, 236, 293, 337	3

At least nine credits from ENGL 423, 425, 426, 430, 441, 444, 445, 446, 451, 453, 458, 460, 461, 463, 464, 469, 470, 471, 475, 479, 481, 483, 484, 485, 486, 487, 488, 489	9
	18

Language and Linguistics Option	*Credits*
Required: ENGL 281, 410	6
ENGL 404, ENGL or ANTH 415, 416, 429, FLL 455, or GER 455	3
ENGL or ANTH 411, 414, or ANTH 405	3
ENGL 413, FLL 458, or GER 458	3
ENGL 417 or 451	3
	18

English as a Second Language Option	*Credits*
ENGL 281, 410	6
ENGL or ANTH 411, 415, ANTH 405, or FLL 455	3
ENGL 436, 438, 439	9
	18

Dramatic Literature Option	*Credits*
Required: ENGL 253, 295, 296	9
At least nine credits from ENGL 355, 356, 458, 460, 465, 470 and 423, 469 and 489, when the subject matter is drama or dramatists	9
	18

Writing Option	*Credits*
Required: ENGL 281, 295 or 296, 321	9
At least nine credits from ENGL 305, 306, 307, 308, 322, 405, 406, 407, 408, 479	
JOUR 417, 418	9
	18

The Graduate Programs

The Department of English offers graduate programs leading to the master of arts for the teaching of English, the master of arts, and the doctor of philosophy. For further information, write to the chairman of the Department of English to obtain the bulletin *Graduate Study in English.*

Master of Arts for the Teaching of English Degree

The master of arts for the teaching of English (MATE) degree is designed primarily to train teachers. The MATE degree encourages broad preparation in language and literature, with special attention to composition, literary appreciation, applied linguistics, ESL, and other subjects needed by teachers in both primary and secondary school. Except for the specialty in ESL, foreign language proficiency is not required for this degree. Students pursuing the MATE degree normally do not expect to continue their studies beyond the master's level.

Master of Arts Degree

The master of arts degree is intended for students who plan to continue work toward the doctor of philosophy degree, for potential community college teachers, and for individuals who want to acquire overall background in the study of language and literature. The program includes extensive reading in English and American literature and language, as well as practice with basic tools and methods of scholarship. Evidence of proficiency in one foreign language, normally French or German, is required.

Upon admission to the M.A. program, the student follows either Plan A, the thesis program, or Plan B, the nonthesis program.

Interdisciplinary Master of Arts Degree — TESL

The department also participates in the interdisciplinary master of arts degree with a major in teaching English as a second language in cooperation with the Department of Curriculum and Instruction in the College of Education. For additional information, refer to the Interdisciplinary and Special Programs section of this catalog.

Doctor of Philosophy Degree

Students who have earned M.A. degrees in English may apply to the doctoral program upon evidence of an overall grade-point of 3.0 or higher in all undergraduate and graduate work, a satisfactory score on the Graduate Record Examination verbal and advanced tests, and a writing sample indicating superior ability when discussing literature. Final acceptance depends upon successful performance on a departmentally administered Ph.D. qualifying examination.

All candidates for the Ph.D. degree are required to present an acceptable dissertation and to give evidence of proficiency in two foreign languages, normally French and German, or a more intensive knowledge of one foreign language, normally French or German.

FOREIGN LANGUAGES AND LITERATURES (FLL)

Faculty: Curry, Hertling, Leneaux, Lindsay, Macura, Manca, Marvick, Melara, Petersen, Petty, Rojas (Ch.), Sepúlveda-Pulvirenti, Tobin, Torres Caballero, Wagener, Whitenack, Yu

The objectives of the study of foreign languages and literatures are practical and humanistic: proficiency in the four basic language skills of oral comprehension, speaking, reading comprehension, and writing; knowledge and understanding of the literature, thought, and culture.

The Department of Foreign Languages and Literatures offers courses of study leading to the degree of bachelor of arts with majors in French, German, and Spanish language and literature, and master of arts with a major in foreign language and literature. In addition, students may take courses in Arabic, Basque, Chinese, classical Greek, Hebrew, Italian, Japanese, Latin, Persian, Portuguese, and Russian. Most courses offered help fulfill requirements toward a liberal arts degree, and are also designed to assist in the preparation of language teachers and to help provide training for other careers requiring language skills.

Within the major program, the student has the option of emphasizing language or literature, although neither may exclude the other.

In addition, in Spanish, the student may choose either a peninsular or Spanish-American emphasis.

Foreign Language Requirement

The College of Arts and Science and a few departments in other colleges have a foreign language requirement. In the College of Arts and Science, students may meet the requirement by completing course 204 or 209 or equivalents in any language. Students have a choice of a total skills sequence (listening comprehension, speaking, reading, writing) or a sequence which stresses reading.

Successful completion of two college semesters of Latin and two college semesters of classical Greek also fulfills this requirement.

Secondary School Teacher Licensure

Students in the College of Arts and Science who are majoring in a foreign language may be licensed to teach in junior high, middle, and high schools by taking a prescribed number of courses in the College of Education, usually about 32 credits. These include 10 credits of supervised teaching in the public schools, and specialized courses in methods.

The teaching *major* consists of 30 credits in one language, all of which must be upper-division except for required courses in culture and civilization. French majors must take FR 221, 301, 305-306, 309 (two credits), 313, 314, and FLL 455 or approved equivalents. German majors must take GER 221, 301, 305-306, 309 (two credits), 311, and 455 or approved equivalents. Spanish majors must take SPAN 221 or 222, 301, 305-306, 309 (two credits), 351, 352, 410, and FLL 455. The student must also have a teaching minor. The department strongly recommends a teaching minor in a second foreign language.

The teaching *minor* in a foreign language is available to students who are working for a teaching major in another foreign language or in another subject. It consists of 20 credits in the language of the minor, of which no less than 10 credits must be upper-division work, most of which are prescribed.

For further information, contact the Department of Foreign Languages and Literatures.

Laboratory Facilities

The Learning Laboratory, located in Room 109 of the Getchell Library, has a language practice laboratory whose records and tapes of different languages are used to improve the command of the spoken language. Laboratory practice is required as part of homework in specified courses.

Bachelor of Arts Degree Requirements for a Field of Concentration in French, German or Spanish

For the bachelor of arts degree, a minimum of 48 credits are required in the field of concentration, distributed as follows:

Major Interest Subject

In the major interest subject (French, German, or Spanish) 30 credits are required, all of which must be upper-division except for required courses in culture and civilization. French majors must take FR 221, 305-306, 309 (two credits), and 313, 314. German majors must take GER 221, 305-306, 309 (two credits), and 311. Spanish majors must take SPAN 221 or 222, 305-306, 309 (two credits), 351, 352, 410.

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Foreign languages and literatures accepts any minor approved by the College of Arts and Science.

Minor in Foreign Languages and Literatures (Basque, French, German, Spanish)

Students majoring in foreign languages and literatures and other fields may minor in foreign languages and literatures by completing one of the following:

For a minor, 20 credits are required of which 14 must be numbered above 300. French minor: 204, 221, 305, 306, 309 (two credits) and two other three-credit French courses numbered above 300. (FR 313 is recommended.) German minor: 204, 221, 305, 306, 309 (two credits) and two other three-credit German courses numbered above 300. (GER 311 is recommended.) Spanish minor: 204, 221 or 222, 305, 306, 309 (two credits) and two other three-credit Spanish courses numbered above 300.

For Basque studies minor, see Interdisciplinary and Special Programs.

Secondary School Teaching: to include all the courses in education required by the College of Education, usually 20 credits. The teaching major must include an approved course in linguistics. A teaching minor in a second foreign language is strongly recommended, consisting of from 20 to 26 credits (at least 10 must be at the upper-division level), and must include courses 305-306.

Master of Arts Degree

The Department of Foreign Languages and Literatures offers a program of graduate study leading to the degree of master of arts with a major in foreign languages and literature and specializations in French, German or Spanish. The student must meet the general university requirements for admission to graduate standing. In addition, each student must have acquired a degree of proficiency in a major language acceptable to the department, and must have generally no less than a 3.0 GPA, on a scale of 4, in the undergraduate language major.

Plan A requires 30 graduate credits. No less than 18 credits, including six thesis credits, must be in courses numbered 700 or above. If a minor is approved, no less than six graduate credits are required in the minor area.

Plan B requires 32 graduate credits, of which no less than 15 must be in courses numbered 700 or above. No thesis is required. If a minor is approved, a minimum of eight graduate credits are required in the minor area.

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

GEOGRAPHY (GEOG)

Faculty: Exline (Ch.), Hausladen, James, Knapp, Kramer

Adjunct Faculty: Eigenheer, Klieforth

Bachelor of Science in Geography

The department offers courses leading to the degree of bachelor of science in geography.

Students of modern geography develop an unusual combination of knowledge, techniques and theory that can be applied to an almost limitless variety of problems. This versatility is the product of the geographer's concern with both the natural and cultural features of the earth's surface and the manner in which they are bound together in a web of intricate relationships. Today's geographer focuses on two kinds of inquiry — locational patterns and processes and understanding the cultural and environmental systems found on the earth.

The geography student completes a core of 16 credits and then works with a departmental adviser to develop an area of concentration suited to the individual's needs. Examples may be found in areas such as physical geography (including environmental impact analysis), cultural and international studies, urban and regional planning (including the analysis and management of growth), cartography and computer mapping, and climatology.

Students may obtain the Bachelor of Science in Geography using the following options: Option 1 — students must complete a minimum of 36 credits in geography. Option 2 — students will follow an expanded field of concentration. Because of the necessity of tailoring programs to the students'

needs and desires to graduate all students must meet with their assigned departmental adviser every semester.

Major Interest Subject	*Credits*
GEOG 103—Geography of Man's Environment	4
GEOG 106—Cultural Geography	3
GEOG 109—Economic Geography	3
GEOG 212—Cartography	4
GEOG 418—Geographic Thought	2
	16
Additional geography courses are determined in conjunction with an adviser. Nine credits will be from outside the geography department	29
	45

OPTION 1—Standard Field of Concentration

OPTION 2—Expanded Field of Concentration	*Credits*
Natural science, mathematics and engineering	
GEOG 103	4
GEOG 212	4
Additional courses outside of department determined in conjunction with adviser	15
Electives	7
	30
Social Science	
GEOG 106	3
GEOG 418	2
Additional courses outside of department determined in conjunction with adviser	6
Electives	4
	15
Communication, computation, cultural and area analysis	
Courses outside of department determined in conjunction with adviser	6
Electives	4
	10
Advisement	
Courses outside of department determined in conjunction with adviser	3
Electives	6
	9
Total	64

Please contact the Department of Geography for specific instructions and a list of courses for Option 2.

Minor in Geography

Students majoring in another field may minor in geography by completing the following:

Minor Interest Subject	*Credits*
GEOG 103 (laboratory required)	4
GEOG 106 or 109	3
An additional 11 credits, nine of which must be upper division, are determined in conjunction with a departmental adviser	11
	18

Land Use Planning Policy

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

HISTORY (HIST)

Faculty: Brodhead, Coray, Davies, Edwards, Ferguson, Folkes, Hartigan, Hildreth, Hulse, Marschall, Moran, Raymond, Rowley, Shepperson (Ch.), Tigner

Adjunct Faculty: Bandurraga

The Department of History offers courses of study leading to the degrees of bachelor of arts, master of arts, and doctor of philosophy.

Bachelor of Arts Degree

Major Interest Subject	*Credits*
HIST 101-102	6
HIST 105-106 (three credits each)	6
Additional credits in history courses numbered 200 and above to be selected in consultation with adviser. From among these credits a total of at least six credits must be selected from the following non-American and non-European courses: HIST 343, 344, 345, 346, 351, 352, 353, 361, 362, 371, 372, 447, 448, 449. A total of 30 credits exclusive of HIST 101 and 102 are required	24
	36

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. History accepts any minor approved by the College of Arts and Science.

Minor in History

Students majoring in another field may minor in history by completing one of the following:

Minor Interest Subject (General History)	*Credits*
To be chosen from HIST 101, 102, 105, 106	6
From 300-level or above American history courses	6
From 300-level or above European history courses	6
From 300-level or above Third World history courses	3
	21
Minor Interest Subject (American History)	
HIST 101 and 102	6
plus 12 additional credits in American history 200 level and above (nine credits of which must be 300 and above), but no more than three credits in 495-497	12
	18
Minor Interest Subject (European History)	
HIST 105 and 106	6
plus 12 additional credits in European history courses numbered 200 and above (nine credits of which must be 300 and above)	12
	18
Minor Interest Subject (Third World History)	
HIST 105	3
plus 15 upper-division credits from African, Latin American, Far Eastern, Middle Eastern history or Ancient History 371	15
	18

Master of Arts Degree

Students wishing to work toward the master of arts degree in history should read the section relating to graduate study and obtain from the department a brochure on *Graduate Study in History*. The department requires that applicants hold a baccalaureate degree with a major (or 24-semester-credit minor) in history, have a cumulative undergraduate GPA of 2.75, and achieve a satisfactory score on the Graduate Record Examination. There are optional programs for the Master of Arts degree. The Option A program requires a written comprehensive examination (after completion of 20 credits of graduate work), reading knowledge of one foreign language, 24 semester credits, a six-credit thesis, and a final oral examination. The Option B program requires a written comprehensive examination (in the semester in which 30 credits of graduate study are completed), reading knowledge of one foreign

language, 32 semester credits, and a final oral examination. Further details may be obtained from the dean of the Graduate School and from the chairman of the department.

Doctor of Philosophy Degree

Students wishing to pursue a Ph.D. degree with a major in history should read the section relating to graduate study and obtain from the department a brochure on *Graduate Study in History*. The department requires that applicants have a master of arts degree, have a cumulative GPA in all undergraduate and graduate work of 3.0 or higher, and achieve a satisfactory score on the Graduate Record Examination. The Ph.D. degree program requires an oral qualifying examination, 48 graduate credits past the M.A., of which at least 30 must be in approved courses, a current working knowledge of one foreign language and meeting of the university language requirement, written and oral comprehensive examinations in three fields, a dissertation, and a final oral examination.

As subjects for special research and for the required dissertation are limited to areas in which the department has particular strengths, applicants should plan to specialize in history of Nevada, Western North America, or American studies. Exceptions to this emphasis may be made with departmental approval, on the basis of adequate library resources and committed faculty involvement. Further details may be obtained from the Office of the Dean of the Graduate School and from the chairman of the department.

For general information, contact the chairman of the department.

LIBRARY SCIENCE (L SC)

Library Science is not a department; however, information on courses is available from the director of libraries.

MATHEMATICS (MATH)

Faculty: Bagchi, Blackadar, Brady, Colbert, Davis, Evans, Hong, Hooper, Kumjian, Lambert, Langsner, Macauley, McMinn, Olmstead, Pinsky, Pfaff, Sarbin, Tompson (Ch.), Wagner, Wishart

The department offers courses leading to the degrees of bachelor of science with a major in mathematics, bachelor of science with a major in computer science, master of science, and master of arts for the teaching of mathematics.

Bachelor's Degrees

Mathematics

Required courses	*Credits*
MATH 215,[1] 216, 217, 311, 320, 330, 331, 341, 352	29
Courses selected from the following:	
mathematics courses numbered above 300	9
	38

Students who are preparing for secondary school teaching may substitute two of the three courses: MATH 373, 474, 475 for MATH 311 and 320.

Additional Required Courses: The total number of credits in the field of concentration must be at least 56. In addition to credits for the major, students must complete 18-21 credits in a minor or selected program of study chosen with the adviser and approved by the department chairman. This program usually consists of courses from other departments which support the student's mathematical interest or which comprise a substantial program in a single area. Mathematics accepts any minor approved by the College of Arts and Science.

Computer Science

Required Courses	*Credits*
MATH 215,[1] 216, 217, 330, 352, 381	21
C S 183, 283, 285, 333, 386, 387, 485, 486	25
Courses selected from C S 435, 437, 475, 483, 487, 488, 489, 496 MATH 481, 484, E E 372, 405, 431	10
	56

Additional Required Courses (16 credits): PHYS 201,[2] 202, 203, 204, 205, 206, CHEM 101.[2]

For graduation in the computer science major a total of 130 credits are required; the foreign language requirement is a departmental option for this field of concentration. Students desiring to major in computer science are designated *pre-computer science* upon admission to the university. Upon satisfactory completion of their first two years of studies they are granted full acceptance into the computer science major.

Pre-computer science students should conduct their studies in accord with the following schedule:

Freshman Year
First Semester

	Credits
C S 183—Introduction to Computer Science I	4
MATH 215[1]—Calculus I	4
CHEM 101[2]—General Chemistry	4
ENGL 101[3]—Composition I	3
	15

Second Semester

	Credits
C S 283—Introduction to Computer Science II	3
MATH 216—Calculus II	4
PHYS 201[2]—Physics for Scientists and Engineers I	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
ENGL 102[3]—Composition II	3
Additional university core requirements	3
	17

Sophomore Year
First Semester

	Credits
C S 285—Introduction to Computer Systems	3
MATH 217—Calculus III	4
PHYS 202—Physics for Scientists and Engineers II	3
PHYS 205—Physics for Scientists and Engineers Lab II	1
Additional university core requirements	6
	17

Second Semester

	Credits
C S 386—Computer Programming Languages	3
MATH 352—Probability and Statistics	3
PHYS 203—Physics for Scientists and Engineers III	3
PHYS 206—Physics for Scientists and Engineers Lab III	1
Additional university core requirements	6
	16

Junior Year
First Semester

	Credits
C S 333—Computer Logic Design	3
C S 485—Computer Data Structures	3
MATH 330—Linear Algebra I	3
Additional university core requirements	6
	15

[1]MATH 215 satisfies the university core mathematics requirement.
[2]CHEM 101, PHYS 201 jointly satisfy the university core natural science requirement.
[3]ENGL 101, 102 jointly satisfy the university core writing requirement.

Second Semester

	Credits
C S 387 – Introduction to the Theory of Computation	3
C S 486 – Principles of Computer Operating Systems	3
MATH 381 – Discrete Mathematics	3
Required technical electives	8
	17

Senior Year
First Semester

	Credits
Required technical electives	2
Technical electives (upper division)	9
Electives	6
	17

Second Semester

	Credits
Technical electives (upper division)	10
Electives	6
	16

Minor in Mathematics

A student in any college who completes 20 credits in mathematics courses in the Department of Mathematics at the 200 level or above including eight credits at upper-division (300-400) level satisfies the requirement for a minor in mathematics.

Minor in Computer Science

Refer to the interdisciplinary section of this catalog for a complete description of the requirements.

Master of Science Degree

The Department of Mathematics offers a graduate program leading to the master of science degree and participates in an interdisciplinary program leading to a master of science degree with a major in computer science. For further information, contact the dean of the Graduate School or the department chairman or refer to the interdisciplinary section of this catalog.

Master of Arts for the Teaching of Mathematics Degree

The Department of Mathematics offers a graduate program leading to the master of arts for the teaching of mathematics (MATM) degree. The MATM program is designed to upgrade the mathematical and educational expertise of practicing secondary teachers. For further information, contact the department chairman.

MILITARY SCIENCE (MIL)

Faculty: Czech, Eldredge, Fitzgerald, Lewis, McCloskey, Reynolds, Woodfill

The Army Reserve Officers Training Corps (ROTC) is the only military commissioning program of any armed service within the University of Nevada System. ROTC is available at university request and represents a contractual agreement between the army and the university. The ROTC program in the Military Science Department is administered by career army officers, carefully nominated by the Department of the Army, subject to approval by the university president.

Major interest subjects required for commissioning	Credits
Basic Course requirement	
Option I – MIL 101, 102, 201, 205	8
Option II – MIL 204 – Basic Summer Camp	2
Option III – Students with three or four years of JROTC or 12 or more months continuous federal service may bypass basic courses	0
Advance Course requirement	
MIL 301, 302, 303, 401, 402	14
Additional elective hours for credit	
MIL 203, 304, RPED 181	4-10
	20-34

Program Objective

The overall objective of the ROTC program is to develop in the student/cadet – through both classroom theory and practical application – the necessary traits, knowledge, proficiency, and experience for a commission in the United States Army. This includes a broad educational base including, in addition to those subjects integral to the degree field, certain academic subjects of particular value in both civilian and military pursuits; a general knowledge of the historical development of the United States Army and of its role in support of national objectives; a working knowledge of the general organizational structure and of how the various components operate as a team in the fulfillment of overall objectives; a strong sense of personal integrity, honor, and individual responsibility; knowledge of the human relationships involved and an understanding of the responsibilities inherent in assignments within the military service; the ability to communicate effectively both orally and in writing; sufficient knowledge of military life to insure a smooth transition from the normal civilian environment. The curriculum is designed to prepare the student for either career service or reserve service.

Program Description

The Military Science Department offers an academically challenging and practical curriculum which can be accomplished in eight semesters or a compressed program of either six or four semesters. The military science curriculum is intended to enrich the student and supplement baccalaureate or postgraduate studies with the degree-producing departments. The army recognizes the need for officers with varied academic credentials and is prepared to award a commission to any deserving student based on ROTC achievement upon graduation.

The scope of the military science curriculum is oriented toward developing the best possible all-around student who demonstrates leadership and managerial skill; reacts well under pressure; and understands general military subjects. This goal is accomplished by classroom conferences and a leadership laboratory program.

The leadership laboratory program provides academic credit and is an essential gauge in evaluating the student as a prospective second lieutenant. The leadership laboratory for the freshman and sophomore years is an introduction to the skills required in the army. Practical exercise and hands-on training are emphasized. Subject areas include but are not limited to map reading, unarmed defense, weapons familiarization and firing, and familiarization with army tactical vehicles and army aircraft. Junior year leadership laboratory consists of individual

leadership training, parade and combat drill, and field exercises. During the senior year students perform actual military duties within the Military Science Department.

Basic Program

Freshmen (MIL 101-102): Introduction to the organization, mission, history, and functions of each of the armed services, the Reserves, National Guard, and the ROTC; multiple options available for military service; the combat and support role of squad-size units; basic individual weaponry; the objectives and instruments of national power, strategy, and security.

Sophomores (MIL 201-205): Provision of a sound foundation in the principles of small unit leadership with an emphasis on map reading, tactics and management at the squad level.

Advanced Program

Juniors or selected graduate students (MIL 301-302): Development of individual qualities and capabilities inherent in a successful leader and manager by illustrating effective leadership traits; instruction in methods of instruction; development of an appreciation of the principles of combat at platoon and company levels, techniques of command, control, and management at all levels; attendance at any army-paid, six-week, advanced summer camp (usually between the student's junior and senior years) immediately after spring semester.

Senior or selected graduate students (MIL 401-402): Seminar on the organization, mission, functions, and capabilities of battalion and larger units and the interrelationships of the combined arms team; the numerous administrative and logistical problems which confront leaders at platoon and company level; the role of the United States as a world power to include military alliances and global commitments; introduction to military law.

The advanced course is open to undergraduate and graduate students with at least four remaining semesters as full-time students. Students who successfully complete the basic program or the six-week ROTC basic summer camp (usually held at Fort Knox, Kentucky), may apply for admission into the advanced program. The basic summer camp is normally scheduled after the student's sophomore year or during the summer preceding the four remaining semesters at the university. The basic summer camp substitutes for the basic program and is geared to students who join the ROTC program late and wish to accomplish the curriculum in four semesters (two years).

The advanced program differs from the basic program in that the student enters into a contract with the army whereby the individual agrees, contingent upon continued university enrollment, to complete the ROTC program (including advanced summer camp) and to accept a commission, if offered, upon termination of the degree program. To be eligible for commissioning, each student must have earned at least a baccalaureate degree.

For acceptance into the advanced program a student must:

1. Be a citizen of the United States and be regularly enrolled as a full-time student at the university.
2. Be able to complete the course, graduate, and be commissioned prior to the thirtieth birthday.
3. Have successfully completed such survey and screening tests as may be prescribed.
4. Have successfully passed a prescribed physical examination.
5. Be selected by the professor of military science.
6. Have executed a written contract with the United States government.

Volunteer Extracurricular Activities

Sierra Guard—A competitive precision drill team which has the added distinction of being the personal honor guard of the governor of Nevada. The Sierra Guard is well regarded for its professional competence and esprit de corps.

Rangers—A highly competitive organization that provides additional military training for students who are interested in getting the ultimate preparation for success as future Combat Arms Officers. The *Wolf Pack Ranger Challenge* team is an element of the organization and competes annually against teams from 58 other colleges and universities in the Western United States.

Wolf Pack Rifle and Pistol Teams—precision shooting teams that compete locally and against teams from other colleges and universities in the Western United States.

Career Opportunities

Advanced program students who demonstrate outstanding academic, military, and leadership proficiency may be selected as distinguished military students (DMS) at the beginning of their senior years. As a DMS, a student may apply for a commission in the regular Army. A commission in the regular Army gives the student the same status and benefits as a graduate from the United States Military Academy. The student is not required to make the army a career but simply agrees to serve the minimum time of three years before deciding whether or not to remain. The vast majority of career officers and numerous generals are ROTC graduates from the nearly 300 colleges and universities in the United States which offer ROTC.

Active Duty and Reserve Obligations

Students commissioned from the ROTC program normally serve on active duty in the army as reserve officers for a period of up to three years upon graduation from the university. After completion of this active duty they are assigned to reserve units for an additional five years, if a vacancy exists in a unit within a reasonable distance from their homes, or are integrated into the regular Army upon request.

Reserve Forces Duty

Students commissioned from the ROTC program may also request to serve with the U.S. Army Reserve or the Army National Guard. This consists of three to six months' active duty, and an eight-year obligation with the reserve forces, either in units or in the individual ready reserve.

Financial Assistance

Students taking the basic course receive no pay unless they have ROTC scholarships. Students awarded Department of the Army two-, three-, and four-year ROTC scholarships receive $100 per month subsistence pay while enrolled in school (ten months per year maximum) and payment for books, tuition, and fees. All other students formally enrolled in the advanced

course are paid subsistence at a rate of $100 per month while enrolled in school, not to exceed a total of 20 months. Students are paid one-half of the base pay of a second lieutenant while attending the six-week summer camp training plus travel pay to and from summer camp. The Military Science Department has a limited number of in-state and out-of-state fee waivers available each semester for students requiring financial assistance.

Additionally, the Nevada National Guard pays one-half of the credit costs for students who elect to serve simultaneously in the Nevada National Guard and in Advanced ROTC. This is a particularly valuable option which can be worth over $10,000 for veterans and students with junior ROTC experience.

Textbooks, Uniforms, and Equipment

The United States government provides each basic course student with the necessary textbooks, uniform, and equipment.

Students in the advanced course, in addition to receiving the $100 monthly stipend, texts, and instructional equipment at the expense of the United States government, are provided an officer-type uniform. The United States government provides the university with a uniform allowance for each student enrolling in the advanced course and this allowance is used to purchase the officer-type uniform, which the student may buy upon commissioning.

MUSIC (MUS)

Faculty: Cleveland (Ch.), Ehrke, Engstrom, Haimowitz, Jones, A. Lenz, J. Lenz, McGrannahan, Puffer, Smith, Williams, Yim

The department offers courses leading to the degrees of bachelor of arts with a major in music, bachelor of music with majors in applied music or music education, and master of arts or master of music.

Courses in the areas of music theory, music history, applied music, and methods of music teaching are offered for cultural benefit and for professional preparation of performing musicians and/or music teachers.

All students in the university may participate in one or more of the performance organizations. These include university band, concert choir, symphonic choir, opera theater, university-community symphony, and chamber music ensembles. Solo performance is possible in class recitals or in connection with the performance organizations.

Bachelor of Arts with Field of Concentration in Music

For the bachelor of arts degree, a minimum of 38 credits is required, distributed as follows:

Major Interest Subject	*Credits*
Applied individual instruction in a single area of study	6
Music Theory—MUS 207-208, 209-210, 301-302, 307-308	16
Music History—MUS 201-203	6
Ensemble	6
To be chosen from theory or history and literature courses, 300 or above	4
	38

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Music accepts any minor approved by the College of Arts and Science.

The bachelor of arts is a liberal arts degree.

Bachelor of Music

The bachelor of music, with a major in music education, is a professional degree which meets present state of Nevada music licensure requirements.

Major Interest Subject	*Credits*
Applied major instrument or voice (a senior recital of 25 minutes is required)	8
Piano competency (Piano Proficiency Examination must be passed)	
Music Theory—MUS 207, 208, 209-210, 301-302, 307-308	16
Music History—MUS 201-203, Orchestration—MUS 310, Form and Analysis—MUS 408	15
Ensemble	7
Methods courses in the department—MUS 103, 104, 113, 123, 124, 323, 352, 354	15
Conducting—MUS 321, 322	2
Senior Recital—MUS 499b	0
	63

The requirement of a minor in an area outside the music department is waived.

Professional Education: requirements for licensure as Music Special K-12 in Nevada	36
	99

The bachelor of music degree with a major in applied music is available only to students approved by the entire faculty as showing professional promise in their applied performance areas.

Major Interest Subject	*Credits*
Applied major, four[1] credits per semester	
100 level (entrance audition required)	16
300 level (upper-division audition required)	16
Minor instrument, one credit per semester (non-keyboard majors enroll in piano until the piano proficiency examination is passed; remaining credits are taken in a single applied area)	2
Music Theory—MUS 207-208, 209-210, 301-302, 307-308	16
MUS 201-203, 321 or 322	11
MUS 310, 408	6
Ensembles: major eight credits, secondary five credits	13
Literature electives to include four credits in MUS 418 for vocal majors, and four credits in MUS 483 for piano majors	4
Senior Recital—MUS 499a	0
	84

The requirement of a minor in an area outside the music department is waived.

Minor in Music

Students majoring in subject areas other than music in the College of Arts and Science may minor in music by completing one of the following:

Minor Interest Subjects	*Credits*
MUS 207-208	6
MUS 201, 202 or 203	3
Major ensembles	3
Instrumental or vocal instruction	3
Electives numbered 300 or above	5
	20

Music Industry Option	*Credits*
MUS 181-182	2
MUS 207-208	6
MUS 222-223	4
MUS 317, 319, 325 or 430	2
MUS 485 (audio production or music management)	3
MUS 495 (music literature/history)	3
	20

[1]Vocal students for the first four semesters register for three credits with concurrent registration in MUS 218, one credit each semester, to a total of four credits. MUS 218, Vocal Repertory Coaching, is devoted to the study of diction in English, French, Italian and German.

Applied Music

A special fee of $125 per half-hour lesson is required for all applied individual instruction. All university students may take applied music, although music majors and minors are given first priority for available space. Students taking applied music must also enroll in a major ensemble: symphonic choir, concert choir, orchestra, marching and concert band, or symphonic band and wind ensemble. A maximum of 13 credits in ensembles is allowed toward graduation. Students receive one-half hour individual applied lesson for one credit, and one hour lesson for two, three, or four credits. A Jury Examination is required at the end of the semester for all undergraduate students enrolled in applied music. One hour of daily preparation is required for each credit. A maximum of eight credits of applied instruction at each level may be applied to the B.A. A maximum of four credits of applied instruction at the 700 level may apply toward a graduate degree. All students entering the B.M. applied program must satisfactorily complete an entrance audition; an upper-division audition must be completed after 16 lower-division credits. Any student seeking upper-division or graduate status in applied music must satisfactorily complete an audition (MUS 749, Secondary Instrument or Voice does not require an audition).

Ensemble Requirements

All students taking applied lessons are required to participate in a major ensemble. Concert Choir, Symphonic Choir, Symphonic Band, University Orchestra and Wind Ensemble are recognized as major ensembles in the Department of Music. All music majors and minors taking private lessons must coregister for a major ensemble until they have completed the required number of credits applicable to their degree; after majors and minors have completed the required ensemble credits they must coregister for either a major or minor ensemble as long as they take private lessons. All nonmajors must coregister for either a major or minor ensemble as long as they take private lessons. Enrollment in all ensembles is subject to the approval of the instructor. Music education students are not required to enroll in any of the university ensembles during the semester in which they are student teaching.

a. Voice students are required to be in Symphonic Choir or Concert Choir.

b. String students are required to be in University Orchestra.

c. Wind and percussion students are required to be in a major instrumental ensemble.

d. Keyboard and guitar students are required to be in a major ensemble. Keyboard students may substitute up to 50 percent (four semesters) of their major ensemble requirement by enrolling in Techniques of Piano Accompaniment (MUS 225, 429, 629.)

Masterclass Attendance Requirements

All music majors enrolled in applied instruction must satisfactorily complete the masterclass/concert attendance requirement each semester while attending the University of Nevada, Reno. Satisfactory completion of the requirement involves student attendance at an appropriate masterclass as well as the monthly departmental recital, and attendance at eight additional musical events each semester. Failure to meet these requirements will result in an incomplete grade in applied lessons. A current listing of events is available from the music department each semester.

Foreign Language Requirements for Music Majors

a. Bachelor of arts degree candidates: must complete the regular college requirement.

b. Bachelor of music degree candidates: music education majors are exempt from the foreign language requirement. Applied music majors (excluding those in the vocal area) are exempt from the foreign language requirement.

Those in the applied music vocal area must satisfy a departmental foreign language requirement by either completing two years in a single foreign language, one year each of two different foreign languages, or one semester each of four different foreign languages.

Departmental Requirements

Candidates for all bachelor's degrees in music should consult the current Music Department *Student/Faculty Handbook* for information on any additional departmental requirements. Contact the music department for a copy of the handbook.

Master of Arts and Master of Music Degrees

The master of arts degree (Plan A) requires a written thesis and a minimum of 31 credits distributed as follows:

Major Interest Subjects	*Credits*
Required core: MUS 709, 730, 731-732	12
Thesis and related course work	10
Related studies or minor (two credits of an ensemble is required)	9
	31

The master of music degree in performance (Plan A) is available to students by audition. Recital performances must be auditioned before the department faculty.

Major Interest Subjects	*Credits*
Required core: MUS 709, 730, 731-732	12
Area of principal interest: Applied study and recital performances	10
Related studies or minor (two credits of an ensemble is required)	9
	31

The master of music degree in music education (Plan B) requires a professional paper and is offered for candidates who are active music teachers.

Major Interest Subjects	*Credits*
Required core: MUS 709, 730, 731-732	12
Music education core: MUS 740, 741, and professional paper	9
Related studies or minor (two credits of an ensemble is required)	12
	33

Candidates for all master's degrees in music should consult the current Music Department *Student/Faculty Handbook* for information concerning auditions and placement, comprehensive, oral and piano proficiency examinations. Candidates must complete all requirements for the master's degree as published in the Graduate School section of this catalog.

PHILOSOPHY (PHIL)

Faculty: Achtenberg, Hoffman (Ch.), Kelly, Lucash, Nickles

The department offers courses leading to the degrees of bachelor of arts and master of arts.

Bachelor of Arts Degree

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

Major Interest Subject	*Credits*
PHIL 211, 213, and either PHIL 114 or 326 (required)	9
At least six credits in each of the following three groups with at least three credits at the 400 level in each group:	
Group A—History of Philosophy: PHIL 212, 314, 315, 316, 410, 411, 413, 414, 415	6
Group B—Metaphysics and Epistemology: PHIL 130, 224, 403, 404, 405, 406	6
Group C—Ethics and Value Theory: PHIL 125, 202, 203, 207, 323, 325, 401, 402, 407	6
Additional credits in philosophy	9
	36

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Philosophy accepts any minor approved by the College of Arts and Science.

Minor in Philosophy

Students majoring in another field may minor in philosophy by completing the following:

Minor Interest Subject	*Credits*
PHIL 211 and 213	6
At least six credits from Group A and three credits from Group B	
Group A—PHIL 314, 315, 316, 403, 404, 405, 406, 410, 411, 413, 414, 415	6
Group B—PHIL 323, 325, 401, 402, 407	3
Additional credits in philosophy	3
	18

Master of Arts Degree

The candidate for the master of arts degree must complete a minimum of 18 credits in 700-level philosophy courses. A total of 30 graduate credits is required for Plan A or thesis program. Six to nine of these credits must be taken outside the department in an area approved by the department. A total of 33 graduate credits is required for Plan B or non-thesis program. Nine to 12 of these credits must be taken outside the department in an area approved by the department. While not required, a reading knowledge in at least one foreign language is highly recommended, especially if the candidate wishes to pursue further graduate studies beyond the master's level.

Each candidate for the master of arts degree is required to pass a comprehensive written examination.

PHYSICS (PHYS)

Faculty: Altick, Bruch, Cathey, Kliwer, Marsh, Moore (Ch.), Neill, Winkler

Cooperating DRI Faculty: Chai, Gertler, Hallett, Hoffer, Hudson, Pitter, Telford, Warburton

The department offers courses leading to the degrees of bachelor of science, master of science, and doctor of philosophy.

Bachelor of Science Program

The bachelor of science program provides a foundation in basic science that qualifies the recipient for technical positions in industry, government laboratories, or for graduate studies in physics, as well as a variety of related fields.

Major Interest Subject	*Credits*
PHYS 201, 202, 203, 204, 205, 206	12
PHYS 351, 352	6
PHYS 473-474 or 421-422	6
Credits at the 300-level or above including a minimum of three laboratory credits	6
	30

Additional Required Courses (22 credits): CHEM 201, 202 (eight credits) recommended or CHEM 101, 102 (eight credits). MATH 215, 216, 217, 320 (14 credits). Either German or Russian is recommended to fulfill the foreign language requirement.

The above requirements are considered minimum. A student who wishes to enter the field of physics is advised to take PHYS 421-422, 425-426, and 473-474 as well as PHYS 361-362, 363-364, 355, and 466.

Bachelor of Science Programs in Engineering Physics and Geophysics

A bachelor of science degree in engineering physics is offered by the College of Engineering (see Engineering Physics). This program is for the student who desires a strong emphasis on technical and applied courses. The bachelor of science in geophysics offered by the School of Mines also includes a good background in physics. Either of these degrees can be used as preparation for graduate work in physics.

Minor in Physics

Students majoring in another field may minor in physics by completing the following:

Minor Interest Subject	*Credits*
PHYS 201, 202, 203	9
(By petition to the department chairman, PHYS 151-152 may be substituted for PHYS 201, 202)	
PHYS 351	3
Six credits in courses numbered 300 or above, including at least one credit of laboratory	6
	18

Advanced Degrees

Consult regulations of the Graduate School for general admission requirements. Requirements for admission to graduate standing in physics are:

1. A bachelor's degree from an institution offering an approved major in physics (as defined by the American Institute of Physics).
2. Completion of regular junior-senior courses in mechanics, optics, electricity and magnetism, heat and thermodynamics, and modern physics.
3. An average grade of B or better in all physics and mathematics courses, and an overall average of B or better in all undergraduate courses.

Applicants whose records indicate a deficiency in any of the requirements listed above may be admitted on a probationary basis and may be required to take certain undergraduate courses (which do not carry graduate credit). All new graduate students are required to take a preliminary examination in general physics during the first year of graduate study. Graduate students who hold half-time assistantships are not permitted to enroll for more than 10 credits in graduate courses in any one semester. The general requirements of the Graduate School must be followed by each student in physics working for an advanced degree.

Master of Science Degrees

Master of science degrees are offered with majors in physics or atmospheric physics. The physics courses should include PHYS 701, 702, 712, 721-722, 790. The atmospheric physics courses should include PHYS 701, 704, 740, 741, 742, 743, 749, and 790. Additional credits may be in a minor, usually mathematics. A student who needs laboratory experience is advised to register for experimental work. The program of courses is planned in consultation with a graduate adviser and is subject to approval by the student's advisory committee.

To be admitted to candidacy, the student must complete 10 graduate credits with a grade of B or better, and achieve a satisfactory score on the Graduate Record Examination. Subject to the approval of the committee, a student may elect a master's degree program with or without thesis. The requirements for the master of science degree with thesis include the completion of 30 semester credits, of which six credits must be in thesis research; the thesis should demonstrate the student's ability to carry out independent research. For the master's program without thesis, 32 credits are required, with no more than six credits in special problems courses, and a written comprehensive examination must be passed. All M.S. candidates must pass a final oral examination administered by the student's advisory committee. The emphasis in the examination will be on the thesis when one is presented; otherwise, it will be on mastery of the graduate-level course work.

Doctor of Philosophy Degree

A Ph.D. program is offered with a major in physics. In addition, a specialization in atmospheric science is also offered. The purpose of the formal course work is twofold: to give the student a broad background in classical and modern physics, and to prepare for the research work which will form the subject of the dissertation.

Before becoming a candidate for the doctor of philosophy degree, a student ordinarily is expected to earn the master of science degree. The following courses or their equivalents must be satisfactorily completed for the doctor's degree in physics:

	Credits
PHYS 701 – Mathematical Physics	3
PHYS 702 – Classical Mechanics	3
PHYS 712 – Electromagnetic Theory	3
PHYS 721-722 – Quantum Theory I and II	6
PHYS 732 – Statistical Mechanics	3
PHYS 761 – Atomic and Molecular Physics	3
PHYS 795 – Comprehensive Examination	0
At least three credits of PHYS 790	3
Credits selected from other 700-level physics and/or mathematics courses	15
Credits of approved electives	9
	48

For the specialization in atmospheric science, PHYS 706, 740, 745, 748 may be substituted for 721, 722, 732, 761. If there is a substitution for 721-722, a modern physics competence equivalent to PHYS 421-422 is necessary. Before being accepted as a candidate, the student must pass a comprehensive examination on graduate-level material in physics.

POLITICAL SCIENCE (P SC)

Faculty: Chang, Crowley, Eubank, Fox, Ganzel, Haller, Hansot, Herzig, Marini, Siegel (Ch.), Weinberg, Wilcox, Wilds

The department offers courses leading to the degrees of bachelor of arts, master of arts, master of public administration, and doctor of philosophy. The department also administers the major in international affairs.

Bachelor of Arts Degree

Major Interest Subject (30 credits)

P SC 101 or 103 and at least one additional course in each of the following five fields: (1) American government, (2) public administration and public policy, (3) political theory (must be 300/400 level), (4) comparative government, and (5) international relations.

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

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Political science accepts any minor approved by the College of Arts and Science.

History and social theory is an approved area of study for political science majors. See Interdisciplinary and Special Programs section for description.

Minor in Political Science

Students majoring in another field may minor in political science by completing one of the following:

Minor Interest Subject (General)	*Credits*
P SC 101 or 103	3
Three courses from the following: 104, 210, 211, 231 and 341	9
plus three additional upper-division courses	9
	21
Minor Interest Subject (Foreign Affairs)	
P SC 101 or 103, plus 211 and 231	9
plus four upper-division courses in the areas of comparative politics (410-418, 438, 444) and of international relations (336, 410, 430-439) including at least one course from each area	12
	21
Minor Interest Subject (Public Administration and Public Policy)	
P SC 101 or 103, plus 210 and 341	9
plus four additional courses selected from the following: 205, 354, 400, 406, 421, 443, 444, 445, 446, 450, 453, 456, 457	12
	21
Minor Interest Subject (American Government)	
P SC 103, 304, 305, 309	12
plus three additional courses selected from the following: 308, 400, 404, 406, 407, 409, 451 and 452	9
	21

Congressional Intern Program

A program in which the student spends one semester in a senator's office in Washington, D.C. For details and application forms, contact the chairman of the Political Science Department.

Master of Arts Degree

The Department of Political Science offers a graduate program leading to the degree of master of arts that includes course work in political theory, American politics, public administration, public policy, international relations, and comparative politics. One of three areas of study may be in another

academic discipline. Further details may be obtained from the office of the dean of the Graduate School or from the department graduate adviser.

Master of Public Administration and Policy Degree

An interdisciplinary master of public administration and policy degree is offered through the Department of Political Science. The program is designed to prepare students for careers in public service and to increase the administrative and policy analysis skills of people presently employed in government service. The program involves three areas of study: public administration, public policy, and a third area which may be another academic discipline or an interdisciplinary grouping of courses. For more detailed information contact the M.P.A. adviser in the Department of Political Science.

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

Doctor of Philosophy Degree

The department offers major and minor areas of specialization in American politics, public administration and policy, international relations, and comparative politics. A minor field may also be selected from another department. Applicants should have a GPA of 3.25 or higher and submit scores on the Graduate Record Examination as well as letters of reference. The Ph.D. degree program requires 48 course credits plus 24 dissertation credits. Credits may be transferable from master's programs. Foreign language requirements are at the discretion of the candidate's faculty committee. For further information, contact the department's graduate adviser.

Value of Quantitative Skills

Students who intend to do graduate study as well as those who wish to pursue careers in law, business, or public service, will find training in quantitative analytical skills very helpful in the pursuit of their career goals. Students are encouraged to take courses in statistics and computer science. Graduate students pursuing master of arts and master of public administration degrees are required to take Research in Political Science (P SC 781), and Advanced Research Methods in Political Science (P SC 782).

International Affairs Major

For information, see the Interdisciplinary and Special Programs section of this catalog or contact the director of the international affairs major in the Department of Political Science.

PSYCHOLOGY (PSY)

Faculty: Davis, V. Follette, W. Follette, B. Gardner, R. Gardner, Ginsburg (Ch.), Hayes, Hutchinson, Mikawa, Peterson, Solso, Varble, Wallace

The department offers courses leading to the degrees of bachelor of arts, master of arts, and doctor of philosophy.

Bachelor of Arts Program

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

General Psychology

Major Interest Subject	*Credits*
PSY 101, 210, 301, 408	14
Additional credits in psychology	18
	32

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Psychology accepts any minor approved by the College of Arts and Science. The department follows the policy of the college regarding the foreign language requirement.

Social Psychology

Major Interest Subject	*Credits*
ANTH 101	3
PSY 101, 210, 261, 362, 392	16
SOC 101	3
Additional credits in psychology	12
	34

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Social psychology accepts any minor approved by the College of Arts and Science. The department follows the policy of the college regarding the foreign language requirement.

Minor in Psychology

Students majoring in another field may minor in psychology by completing the following:

Minor Interest Subject

For a minor in psychology, the department recommends a total of 24 credits in psychology courses. However, an acceptable minor may be completed by taking a minimum of 18 credits (nine of which must be upper-division credits in psychology) and including:

1. PSY 101 (3 credits).
2. At least three of the following courses: 210, 233, 261, 301, 403, 405, 408, 421, 431, 435, 441, 480 or 481.

Electives from additional course offerings in psychology (which may also include additional courses from #2 above).

Advanced Degrees: Master of Arts Program

The master of arts degree program in general psychology attempts to give the student a broad knowledge of the field.

Doctor of Philosophy Program in General Psychology

The student in this program must meet all the requirements for admission to the Graduate School and the general requirements for obtaining a doctoral degree at the university. Also required is one full year in teaching or research which may be satisfied by spending a suitable fraction of time in teaching or research concurrently with graduate study.

Students in this program may elect a concentration in either experimental psychology or clinical psychology. Details may be obtained by writing to the Department of Psychology.

Doctor of Philosophy Program in Social Psychology

This is an interdisciplinary program offered jointly by the departments of psychology and sociology leading to a doctor of philosophy degree with a major in social psychology.

The student in this program must meet all the requirements for admission to Graduate School and the general requirements for obtaining a doctoral degree at the university.

Also required is one full year in teaching or research which may be satisfied by spending a suitable fraction of time in teaching or research concurrently with graduate study.

Admission Information

To be accepted as a graduate student requires the earning of the bachelor's degree from an accredited college or university. To be accepted in full standing, a minimum of 18 credits of undergraduate work in psychology is required. The student must also meet the following requirements:

1. Credit in a laboratory course in experimental psychology and a course in statistics. In addition, students in a program emphasizing clinical psychology must have a course in abnormal psychology and a course in theories of personality.
2. A GPA of 3.0 for the four years of undergraduate work.
3. Recommendations from former instructors to the effect that the student is capable of doing graduate work at an acceptable level of performance.

In some instances in which a student is deficient in the above requirements, it is feasible to make up such deficiencies before entering the degree program. The department advises students with deficiencies whether they are likely to be considered as graduate students in full standing after such deficiencies have been made up.

The student interested in the social psychology program may substitute 18 credits of undergraduate work in sociology. The laboratory course in experimental psychology is not required for admission if the student's undergraduate work is in sociology, but it is highly desirable.

Preliminary Screening

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

inancial Assistance

A variety of graduate assistantships, fellowships, and ineeships are available to well-qualified students. Stipends gin at $7,250 plus exemption from most of the tuition and gistration fees. *If the student is applying for financial istance, the application should be completed no later than bruary 1.* Normally the candidate receives notification by ril 1 and has until April 15 to accept or reject the offer. In me instances, financial awards become available after this ate and late applications are considered.

SOCIOLOGY (SOC)

Faculty: Backman, Berberoglu, Harvey, Richardson, Warner

Bachelor of Arts Degree

Major Interest Subject	*Credits*
SOC 101 (three credits); 210 (four credits); 392, and 491 or 207; and one of 342, 371, 373, 391, 393; and one of 333, 376, 463, 480, 485	19
Additional courses in sociology	12
	31

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Sociology accepts any minor approved by the College of Arts and Science.

History and social theory is an approved area of study for sociology majors. See Interdisciplinary and Special Programs section for description.

Social Psychology

Major Interest Subject	*Credits*
SOC 101 (three credits), 210 (four credits), 261, 362, 392 (three credits each)	16
PSY 101	3
ANTH 101	3
Additional credits in sociology	12
	34

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Social psychology accepts any minor approved by the College of Arts and Science.

Minor in Sociology

Students majoring in another field may minor in sociology by completing one of the following:

Minor Interest Subject (General)	*Credits*
Required: SOC 101 and 207	6
Two courses from the following: SOC 342, 371, 373, 391, 393	6
Two courses from the following: SOC 333, 376, 480, 485	6
	18
Minor Interest Subject (Applied)	
Required: SOC 101 and 379	6
A choice of SOC 102 or 202; one course from SOC 352, 366, 464; SOC 275 or 480; SOC 376 or 342	12
	18

Master of Arts Program

Master of arts degrees may be taken with emphasis in sociology or social psychology. The program in social psychology is interdisciplinary, with the student taking work in psychology as well as sociology.

An M.A. degree is granted when the student (1) satisfactorily completes 30 semester credits in graduate-level courses, including SOC 601-602—Advanced General Sociology (6 credits), SOC 706-707—Intermediate Statistics (6 credits), and two of the following: SOC 627—Computer Applications in the Social Sciences (3 credits), SOC 718—Research Methods in Social Psychology (3 credits), SOC 737—Survey Research Methods (3 credits), or SOC 738—Methods and Innovations in Assessments (3 credits); (2) earns a minimum of 21 graduate credits while in residence; (3) passes a comprehensive examination; and (4) produces a thesis under the supervision of three faculty members and passes an oral examination given by the department faculty.

An alternative method of earning an M.A. degree is the nonthesis approach. This method includes items (1) through (3) above, in addition to the completion of a professional paper under the supervision of three faculty members and the passing of an oral examination given by the graduate advisory committee (with the total of 32 semester credits required).

Doctor of Philosophy Program in Social Psychology

The Department of Sociology, in cooperation with the Department of Psychology, offers a graduate program leading to the Ph.D. degree in social psychology.

This is an interdisciplinary program which is administered by a social psychology committee. The student may register and receive credits in either the sociology or psychology department, although work is done in both. Students who complete this program receive a Ph.D. degree with a major in social psychology.

The student in this program must meet all the requirements for admission to graduate school and the general requirements for obtaining a doctoral degree at the university. Also required is one full year in teaching or research which may be satisfied by spending a suitable fraction of time in teaching or research concurrently with graduate study.

For additional information, contact the director of the Interdisciplinary Social Psychology Doctorate Program.

Financial Assistance

A variety of graduate assistantships, tuition waivers, and other forms of aid are available to well-qualified students. *If the student is applying for financial assistance, the application should be completed prior to February 1.* Normally the candidate receives notification by April 1 and has until April 15 to accept or reject the offer. In some instances financial awards become available after this date, and late applications are considered.

SPEECH COMMUNICATION AND THEATRE (SPCM, THTR)

Faculty: Bahm, Ballard-Reisch, Bernardi, Dillard, Owen, Page, Seibert (Ch.), Vogel, Walters, Zimmerman
Adjunct Faculty: Stumpf

The department offers the bachelor of arts degree with a major in speech communication or in theatre and the bachelor of fine arts with a major in theatre. A master of arts degree is offered in speech communication. The master of arts degree in theatre was placed on inactive status effective July 1, 1983.

Bachelor of Arts Degree

Speech Communication Major

	Credits
Required: SPCM 113, 210, 212	9
Electives (A minimum of 18 credits must be taken at the 300-400 level)	24
	33

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Speech communication and theatre accepts any minor approved by the College of Arts and Science.

Theatre Major

	Credits
Required: THTR 100,[1] 118, 119, and 221	12
To be selected from THTR 203, 403[2]	9
To be selected from THTR 471, 472, 473, 474	6
To be selected from other theatre courses	6
	33

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Speech communication and theatre accepts any minor approved by the College of Arts and Science.

Minors in Speech Communication and Theatre

Students majoring in another field may minor in speech communication or theatre by completing one of the following:

Speech Communication Minor	Credits
SPCM 210	3
To be selected from 113, 213, 217, 319, 329, 480, 490	6
To be selected from 212, 315, 410, 411, 412, 427, 428, 433, 434, 435	9
A minimum of nine credits must be taken at the 300-400 level	
	18

Theatre Minor	
THTR 100, 118, 119	9
To be selected from: All upper-division courses in theatre	9
	18

(After completion of the three required courses, the student may select an area of specialization: history of the theatre, acting, technical theatre, etc.)

Bachelor of Fine Arts Program

Theatre

Requirements for the BFA include:

(a) Acceptance to the major is determined by application to the theatre faculty after completion of 60 credits. Individuals once accepted into the bachelor of fine arts program must complete four semesters (not counting summers) as full-time students.

(b) Candidates must have a 3.0 GPA or higher in theatre courses for acceptance to the major or continuation in the program.

(c) Candidates must have completed THTR 100, 118, 119, 221 and 9 credits of 203, 403 prior to application.

(d) Candidates are subject to continuing review by theatre faculty and may be returned to the BA program if they fail to maintain 3.0 GPA in theatre courses or to demonstrate requisite aptitude for professional training.

Departmental Core	Credits
Required: THTR 100, 118, 119 and 221	12
To be selected from THTR 203, 403[2]	9
To be selected from THTR 471, 472, 473, 474	6
	27

In addition to the above requirements, the BFA candidate must specialize in one of two options:

Performance Option	Credits
To be selected from THTR 121, 250-251, 350-351	15
To be selected from THTR 203, 403[2]	9
To be selected from THTR 260, 321, 360, 370, 421, 431-432, 450, 454-455	15
	39

Design/Technology Option	Credits
To be selected from THTR 203, 219-220, 230, 240, 330, 339, 340, 349, 360, 370, 403, 409, 419, 431-432, 440	36
Required: THTR 495	3
	39
TOTAL	66

The bachelor of fine arts degree with a theatre major does not require a minor or satisfaction of a foreign language.

[1]THTR 100 should be taken prior to or concurrently with all other theatre courses.
[2]May be repeated for a maximum of nine credits each.

Master of Arts Degree

The department offers a graduate program leading to the M.A. degree with a major in speech communication. Two plans are available: A with a thesis, or B without a thesis.

Internships in such areas as advertising, biomedical communication, conference management, organizational administration, and negotiation may be included as part of the candidate's program.

Requirements for admission to graduate standing in the speech communication major include:

1. An undergraduate GPA of 3.0 (B average, or higher);
2. A 900 (or higher) composite score on verbal and quantitative sections of Graduate Record Examination;
3. At least 18 undergraduate credits in speech communication with grades of B or better (graduate faculty may approve nine upper-division credits in speech communication and nine upper-division credits in a related field, all 18 credits B or better).

Applicants must take the Graduate Record Examination (GRE) before applying for admission to graduate-level courses as a "Graduate Special" while awaiting admission to regular standing; up to nine credits of graduate special courses may apply toward the M.A. degree.

Graduate teaching fellowships are available to qualified applicants. Stipends begin at approximately $7,000 per year. Applications for graduate fellowships should be received by the director of graduate programs in speech communication by March 1. Applicants must be approved for admission to graduate standing in speech communication to be eligible for a teaching fellowship.

See the Graduate School section for general master of arts degree requirements. For additional information, contact the director of graduate programs in speech communication.

College of Business Administration

Laurie G. Larwood, *Dean*

Departments of Instruction: accounting and computer information systems, economics, and managerial sciences.

Accreditation

The baccalaureate and the master of business administration programs of the College of Business Administration are fully accredited by the American Assembly of Collegiate Schools of Business.

Objectives

The College of Business Administration strives to maintain a proper balance between general education and professional preparation for careers in the business world, in government, for research, and for teaching.

The Bureau of Business and Economic Research is the official research unit of the college. It focuses on providing opportunities for faculty and students to engage in research studies of business and economic issues of special concern to Nevada.

The Institute for the Study of Gambling and Commercial Gaming is devoted to the stimulation of research and educational efforts related to studies about gambling behavior and commercial gaming industries, and economic, business, social, and political effects of gambling on society.

The Nevada Small Business Development Center is a cooperative program of the U.S. Small Business Administration and the college. The purpose is to provide professional management assistance to existing and new small businesses throughout the state. There are currently four statewide offices.

Programs

The College of Business Administration offers the following programs:

Baccalaureate Degrees: (a) bachelor of science in business administration with majors in accounting, computer information systems, economics, finance, logistics management, management, and marketing; (b) bachelor of arts with a major in economics.

Master's Degrees: (a) master of business administration; (b) master of science with a major in economics, and (c) master of arts in economics.

Premajor Admission

New undergraduate applicants to the College of Business Administration are admitted to premajor status rather than to a specific major. Premajor students may not enroll in College of Business Administration courses numbered 300 or above.

Sample Schedule for Premajor Students

Freshman Year

First Semester	*Credits*
EC 101 or 102 (does not satisfy social science requirement)	3
ENGL 101	3
MATH 115	5
Fine arts course	3
PSY 101	3
	17

Second Semester	*Credits*
EC 101 or 102 (does not satisfy social science requirement)	3
ENGL 102	3
MATH 211	3
GEOG 103 (prerequisite: mathematics requirement)	3
SOC 101	3
Elective—nonbusiness	1
	16

Sophomore Year

First Semester	*Credits*
ACC 201	3
EC 261	3
W T 201 (prerequisite: ENGL 102)	3
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100; prerequisite: mathematics requirement)	3
Elective—nonbusiness	3
	15

Second Semester	*Credits*
ACC 202	3
EC 262	3
CIS 201, 202	4
W T 202 (may be corequisite with W T 203)	3
Elective—nonbusiness	3
	16

Academic Standards

Students enrolled in the College of Business Administration either as premajor or accepted to a major must have their courses reviewed by a faculty adviser before registering. Students placed on college or university probation are not eligible to progress from premajor to a major program. A student may remain on probationary status in the College of Business Administration for a maximum of two consecutive semesters. After that period, the student must appear before the college's Academic Standards Committee before registering for any additional courses in the college.

Acceptance of Transfer Students Into Business Administration

An overall GPA of 2.75 or higher in bachelor's-level courses is required for a student to be approved for transfer, or be admitted, to a prebusiness or major program in the College of Business Administration. This requirement does not apply to new freshmen applicants.

Requirements for Acceptance to a Major

1. Completion of 60 credits or more with an overall GPA of 2.75 or higher.

2. Completion of the lower-division business core with an overall GPA of 2.75 or higher. The following courses presently constitute the lower-division core: ACC 201, 202; CIS 201, 202; EC 101, 102, 261, 262; MATH 211. A grade of C or better is required for all lower-division core courses, exclusive of general electives.

These requirements are minimum standards which all students are encouraged to surpass. Success in a major program is dependent upon a student possessing strong quantitative and English usage skills.

Application

Students must formally apply to the College of Business Advisement Center, Business Building, Room 409, for acceptance to a major program. The fall acceptance deadline is April 1. The spring acceptance deadline is November 1. Forms are available in the office of the associate dean.

Program of Study

Upon acceptance to a major program in the College of Business Administration, the student is assigned a department adviser. The student, in consultation with the adviser, must complete a major program of study form for approval prior to the end of the *first semester.*

Requirements for Graduation in a Major

1. Complete 128 credits or more with an overall GPA of 2.0 or higher.
2. Complete lower-division business core with a GPA of 2.75 or higher to be accepted to a major.
3. Complete all College of Business Administration courses with a GPA of 2.50 or higher.
4. Complete all courses in the major field with a GPA of 2.75 or higher.

Baccalaureate Degree Requirements

Bachelor of Arts (See Economics)

Bachelor of Science in Business Administration

Basic Curriculum for All Majors

Upon completion of any one of the following four-year curricula with satisfactory grades and upon the recommendation of the faculty and the dean, the bachelor of science in business administration is granted. An economics major may elect a program leading to the bachelor of arts degree.

A student may elect to graduate under the degree requirements of the year of admission and registration, the year of acceptance to the major in which the student is graduating, the year of reentry to the university if not enrolled for a period of five years or more or the year of graduation. In the case of reentry after five years, a student may use the requirements of the years of reentry or graduation only. Students transferring into business administration may elect only the year of transfer, acceptance to a major, or graduation. Adjustments of the individual curricula to fit the needs of individual students may be made with the consent of the adviser and the dean of the college. No changes are considered that bring the curriculum into conflict with any of the following requirements which must be met by every student:

1. The requirements of the university for admission to regular standing and residence credit as well as general university graduation requirements.
2. A minimum of 128 credits is required for graduation.
3. Of the total 128 credits presented for graduation, each student must successfully complete:

a) A minimum of 40 credits in courses numbered 300 or above.

b) A minimum of 51 credits in nonbusiness (of which 48 must be academic credits) which include the following:

Nonbusiness Requirements[1]

	Credits
ENGL 101, 102, 321	9
Fine arts core course	3
GEOG 103	3
MATH 115, 211	8
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100)	3
PSY 101	3
SOC 101	3
SPCM 213 or 217 or 329	3
W T 201, 202, 203	9
Elective—nonbusiness	7

Limitations

1. MATH 101, Intermediate Algebra, three credits, is excluded from the 128 credits required for graduation.
2. A maximum of four 100- and 200-level credits in recreation, physical education, dance, and military science courses may be applied toward the 128 credits required for a bachelor's degree.

c) A minimum of 51 credits in business and economics subjects which include the following courses:

	Credits
ACC 201—Introductory Accounting I AND ACC 202—Introductory Accounting II	6
EC 101-102—Principles of Macroeconomics and Microeconomics	6
EC 261-262—Principles of Statistics I and II	6
CIS 201—Introduction to Computer Information Systems	3
CIS 202—Computer Informations Systems Lab	1
EC 300 (or above)—theory course[2]	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
MGRS 325—Legal Environment or MGRS 373 and 374—Business Law I and II[2]	3-6
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
MGRS 488—Strategic Management and Policy	3
International Business[2]	3
Must be selected from the following:	
ACC 420—International Accounting	
EC 301—Comparative Economic Systems	
EC 367—Comparative Labor Movements	
EC 458—International Economics	
EC 459—Economic Development	
EC 410—Multinational Corporations. (Course content varies and does not always satisfy the international business requirement. Check with Economics Department for details.)	
MGRS 420—International Finance	
MGRS 452—Comparative Management	
MGRS 458—International Logistics	
MGRS 470—International Marketing	
Other College of Business Administration courses to an overall total of	51

d) Completion of course requirements for the selected major.

Upper-Division Courses

Courses numbered 300 or above in business are open only to:

1) business students who have been accepted to a major;
2) nonbusiness majors with the approval of the instructor, department chairman and dean.

Satisfactory/Unsatisfactory Courses

Students in the College of Business Administration may apply a maximum of 15 S/U credits, including CLEP, (physical

[1]Completion of nonbusiness requirements satisfy the university core curriculum.
[2]Managerial sciences department majors check department section for specific course requirements.

education and military science excluded) toward the baccalaureate degree. Premajor or major students may not register for courses in business administration or MATH 211, 213 or 215 on an S/U basis, except for thesis or internship.

ACCOUNTING AND COMPUTER INFORMATION SYSTEMS (ACC, CIS)

Faculty: Blatz (Ch.), Birk, Bowman, Burch, Carslaw, Edberg, Fuller, Grupe, Karbens, Kilari, Mills, Moscove, Neidert, Newman, Simkin, Strefeler.

The department offers the majors of accounting and computer information systems. A student may also take an option that includes both accounting and computer information systems. These majors and the option are outlined in detail below. Upon choosing a major, the student must meet course requirements established by the department, the college, and the university.

Accounting and Computer Information Systems

Accounting, by its nature, operates within a broad socio-economic environment. Therefore, great emphasis is placed upon conceptual knowledge; that is, the student must not only know, but understand.

The accounting major is provided with the theories and procedures which prepare the student for the many facets of the accounting profession, such as public, industrial, managerial, tax, and governmental accounting.

The computer information systems major is offered for those who wish to specialize in business-oriented electronic data processing. The curriculum provides a broad overview of computer-based information systems, with special emphasis on business applications and managerial control.

The programs of study for the accounting major, the computer information systems major, and the accounting/computer information systems option:

Freshman Year
(ACC, CIS and ACC/CIS)

	Credits
EC 101-102 – Principles of Macroeconomics and Microeconomics	6
ENGL 101-102 – Composition I and II[1]	6
Fine arts core course	3
GEOG 103 – Geography of Man's Environment	3
MATH 115 – Algebra and Trigonometry	5
MATH 211 – Elements of Calculus	3
PSY 101 – Introductory Psychology	3
SOC 101 – Principles of Sociology	3
Elective – nonbusiness	1
	33

Accounting Major

Sophomore Year

	Credits
ACC 201-202 – Introductory Accounting I and II	6
CIS 201-202 – Introduction to Computer Information Systems and Lab	4
CIS 203 – Microcomputers in Business	3
EC 261-262 – Principles of Statistics I and II	6
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100; prerequisite: mathematics requirement)	3
W T 201, 202, 203[2]	9
Elective – nonbusiness	3
	34

Junior Year

	Credits
ACC 303-304 – Intermediate Accounting I and II	6
ACC 309 – Management Accounting I	3
ACC 313 – Federal Taxation I	3
Accounting elective – ACC 307 or 410 or 414 or 490 or 494	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpersonal Behavior	3
ENGL 321 – Expository Writing	3
SPCM 213 or 217 or 329	3
Capstone course	3
	30

Senior Year

	Credits
ACC 411 – Auditing I	3
ACC 405 – Advanced Accounting	3
ACC 480 – Accounting Systems and Automation	3
Accounting elective – ACC 307 or 410 or 412 or 414 or 420 or 424 or 470 or 490 or 493 or 494	3
Economic theory – 300- or 400-level course	3
International business course	3
MGRS 325 – Legal Environment or MGRS 473-474 – Business Law I and II	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
MGRS 488 – Strategic Management and Policy	3
Capstone course	3
	33

Accounting majors who plan to take the CPA Examination upon graduation must take MGRS 473 and 474 in place of MGRS 325.

Computer Information Systems Major

Sophomore Year

	Credits
ACC 201-202 – Introductory Accounting I and II	6
CIS 201-202 – Introduction to Computer Information Systems and Lab	4
CIS 203 – Microcomputers in Business	3
EC 261-262 – Principles of Statistics I and II	6
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100; prerequisite: mathematics requirement)	3
W T 201, 202, 203[2]	9
	31

Junior Year

	Credits
CIS 251 – Introduction to Computer Information Systems Development	3
CIS 451 – Advanced Computer Information Systems Development	3
CIS 461 – Information Systems Analysis	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
ENGL 321 – Expository Writing	3
SPCM 213 or 217 or 329	3
Capstone course	3
Electives – business or nonbusiness	3
	33

Senior Year

	Credits
CIS 484 – Data Base Management and Operating Systems	3
CIS 485 – Information Systems Design and Implementation	3
Computer information systems electives – Consult department for elective courses	6
Economic theory – 300- or 400-level course	3
International business course	3
MGRS 325 – Legal Environment	3
MGRS 488 – Strategic Management and Policy	3
Capstone course	3
Electives – business or nonbusiness	6
	33

[1]University requirement. (ACT scores may also require a student to take ENGL 101 as a prerequisite to ENGL 102.)
[2]W T 202 may be corequisite with W T 203.

Accounting and Computer Information Systems Option

Sophomore Year

	Credits
ACC 201-202—Introductory Accounting I and II	6
CIS 201-202—Introduction to Computer Information Systems and Lab	4
CIS 203—Microcomputers in Business	3
EC 261-262—Principles of Statistics I and II	6
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100; prerequisite: mathematics requirement)	3
W T 201, 202, 203[1]	9
Elective—nonbusiness	3
	34

Junior Year

	Credits
ACC 303-304—Intermediate Accounting I and II	6
ACC 309—Management Accounting I	3
ACC 313—Federal Taxation I	3
CIS 251—Introduction to Computer Information Systems Development	3
CIS 451—Advanced Computer Information Systems Development	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
ENGL 321—Expository Writing	3
SPCM 213 or 217 or 329	3
Capstone course	3
	33

Senior Year

	Credits
ACC 311—Auditing I	3
ACC 405—Advanced Accounting	3
ACC 424—Computer Based Auditing	3
ACC 480—Accounting Systems and Automation	3
CIS 461—Information Systems Analysis	3
Economic theory—300- or 400-level course	3
International business course	3
MGRS 325—Legal Environment	3
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
MGRS 488—Strategic Management and Policy	3
Capstone course	3
	36

Accounting/computer information systems majors who plan to take the CPA Examination upon graduation must take MGRS 373 and 374 in place of MGRS 325.

Accounting Minor

	Credits
ACC 201-202—Introductory Accounting I and II	6
ACC 303—Intermediate Accounting I	3
CIS 201-202—Introduction to Computer Information Systems	4
CIS 203—Microcomputers in Business	3
Plus upper-division courses in accounting except ACC 395, 396, 491	6
	22

Computer Information Systems Minor

	Credits
CIS 201-202—Introduction to Computer Information Systems	4
CIS 203—Microcomputers in Business	3
CIS 251—Introduction to Computer Information Systems Development	3
CIS 451—Advanced Computer Information Systems Development	3
CIS 461—Information Systems Analysis	3
CIS Elective—consult department for elective courses	3
	19

ECONOMICS (EC)

Faculty: Atkinson, Cargill, Chu, Dobra, Eadington, Fanchon, Larsen, Metts, Mitchell, Raffiee, Reed (Ch.), Wendel

The economics major is designed to prepare students for positions as economic and statistical analysts in business, government and nonprofit organizations, and for the teaching profession. In addition, it provides a strong foundation for graduate study and research in the fields of economics, business, public policy and law.

Two economics degree programs are offered. One leads to the bachelor of science in business administration and complies with all the requirements of the American Assembly of Collegiate Schools of Business, as administered through the College of Business. The other program leads to the bachelor of arts with a major in economics and follows the traditional liberal arts approach.

The department also offers a minor or related area program in economics (see Minor or Related Area).

Bachelor of Science in Business Administration

This program is intended for economics majors desiring a curriculum which includes a foundation in the functional areas of business administration. Candidates for this degree are not required to present credits in a foreign language.

Bachelor of Science in Business Administration

Economics

Freshman Year

	Credits
EC 101-102—Principles of Macroeconomics and Microeconomics	6
ENGL 101-102—Composition I and II[2]	6
Fine arts core course	3
GEOG 103—Geography of Man's Environment	3
MATH 115—Algebra and Trigonometry	5
MATH 211—Elements of Calculus	3
PSY 101—Introductory Psychology	3
SOC 101—Principles of Sociology	3
	32

Sophomore Year

	Credits
ACC 201-202—Introductory Accounting I and II	6
CIS 201, 202—Introduction to Computer Information Systems and Lab	4
EC 261-262—Principles of Statistics I and II	6
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100; prerequisite: mathematics requirement)	3
W T 201, 202, 203[1]	9
Elective—nonbusiness	3
	31

Junior Year

	Credits
EC 303—Money and Banking	3
EC 321—Intermediate Price Theory	3
EC 322—Intermediate Income Theory	3
ENGL 321—Expository Writing	3
SPCM 213 or 217 or 329	3
MGRS 310—Marketing Principles	3
MGRS 323—Organizational and Interpersonal Behavior	3
MGRS 325—Legal Environment	3
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
Capstone course	3
	33

Senior Year

	Credits
Economics courses (300 or above)	12
International business[3]	3
MGRS 488—Strategic Management and Policy	3
Capstone course	3
Electives—business and nonbusiness	12
	33

[1]W T 202 may be corequisite with W T 203.

[2]University requirement. (ACT scores may also require a student to take ENGL 101 as a prerequisite for ENGL 102.)

[3]May not include upper-division courses needed to meet the 12 credit requirement in the senior year.

Bachelor of Arts

This program is intended for economics majors desiring a curriculum which emphasizes a foundation in the social sciences. Candidates for this degree are required to successfully complete a fourth semester college course in a foreign language or evidence of equivalent proficiency. They are also required to complete a minimum of 38 credits in economics courses.

Freshman Year

	Credits
EC 101-102 – Principles of Macroeconomics and Microeconomics	6
ENGL 102 – Composition II[1]	3
Fine arts core course	3
Foreign language[2]	8
MATH 211 – Elements of Calculus I	3
SOC 101 – Principles of Sociology	3
Elective	4
	30

Sophomore Year

	Credits
Foreign language[2]	6
GEOG 103 – Geography of Man's Environment	3
EC 261-262 – Principles of Statistics	6
CIS 201, 202 – Introduction to Computer Information Systems and Lab	4
W T 201, 202, 203[3]	9
Elective	2
	30

Junior Year

	Credits
PSY 101 – General Psychology	3
EC 303 – Money and Banking	3
EC 321-322 – Intermediate Economic Theory	6
ENGL 321 – Expository Writing	3
Natural science laboratory course	4
SPCM 213 or 217 or 329	3
Elective	12
	34

Senior Year

	Credits
Capstone courses	6
Economic history	3
EC 431 – Introduction to Mathematical Economics or EC 441 – Introduction to Econometrics	3
EC 481 – History of Economic Doctrines	3
Other economics courses (300 or above)	8
Elective	11
	34

Minor or Related Area

The minor or related area program in economics is designed for those who do not want to major in economics, but would like a background in economics to complement their own major programs.

EC 101-102 – Principles of Macroeconomics and Microeconomics	6
EC 321 – Intermediate Price Theory	3
EC 322 – Intermediate Income Theory	3
Other economics courses (300 or above)	6
	18

MANAGERIAL SCIENCES (MGRS)

Faculty: Ansari, Austin, Barnes, Blum, Beekun, DeMaskey, Ghymn, Gillette, Grant (Adj.), Kunkel, Lund, Mitchell, Papasyriopoulos, Sandilya, Sekiguchi, Severance, Spraggins, Stedham, Winne (Ch.)

The Managerial Sciences Department offers major fields of study in finance, logistics, management and marketing. The department also offers courses in business law.

The following program outline is suggested for freshmen and sophomores planning to major in finance, logistics, management, or marketing:

Freshman Year

	Credits
EC 101-102 – Principles of Macroeconomics and Microeconomics	6
ENGL 101-102 – Composition I and II[1]	6
Fine arts core course	3
GEOG 103 – Geography of Man's Environment	3
MATH 115 – Algebra and Trigonometry	5
MATH 211 – Elements of Calculus I	3
PSY 101 – Introductory Psychology	3
SOC 101 – Principles of Sociology	3
Elective – nonbusiness	1
	33

Sophomore Year

	Credits
ACC 201-202 – Introductory Accounting I and II	6
CIS 201, 202 – Introduction to Computer Information Systems and Lab	4
EC 261-262 – Principles of Statistics I and II	6
Natural science (recommend BIOL 100, CHEM 105 or PHYS 100; prerequisite: mathematics requirement)	3
W T 201, 202, 203[3]	9
Elective – nonbusiness	3
	31

Finance Major

Students with career objectives in financial management, banking and other financial institutions, investments or insurance may choose to major in finance. Course requirements for the finance major include:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, finance majors must complete:

MGRS 325 – Legal Environment	3
MGRS 420 – International Finance	3
EC 303 – Money and Banking	3

2. Nine credits required for all finance majors:

MGRS 370 – Investments	3
MGRS 404 – Problems in Business Finance	3
MGRS 462 – Business and Society	3

3. Twelve credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

MGRS 353 – Risk and Insurance	3
MGRS 415 – Commercial Bank Management	3
MGRS 481 – Intercollegiate Business Games[4]	3
MGRS 482 – Internship[4]	2 to 3
MGRS 490 – Independent Study[4]	1 to 3
MGRS 493 – Advanced Seminar in Finance	3
B A 480 – Small Business Institute[4]	3
EC 403 – Monetary Institutions and Policy	3
EC 451 – Public Finance	3
ACC 309 – Management Accounting I	3
EC 321 – Intermediate Price Theory	3
EC 322 – Intermediate Income Theory	3
EC 441 – Introduction to Econometrics	3
ACC 313 – Federal Tax Accounting I	3

[1] University requirement. (ACT scores may also require a student to take ENGL 101 as a prerequisite for ENGL 102.)
[2] Students may meet the foreign language requirement by completing course 201 or 202 in any language.
[3] W T 202 may be corequisite with W T 203.
[4] A maximum of three credits may be applied to major requirements from these courses.

The following program outline is suggested for finance majors during their junior and senior years:

Junior Year

	Credits
EC 303—Money and Banking	3
ENGL 321—Expository Writing	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
MGRS 370—Investments	3
MGRS 325—Legal Environment	3
SPCM 213 or 217 or 329	3
Capstone course	3
Elective—nonbusiness	3
	33

Senior Year

	Credits
Finance courses (with written approval)	12
MGRS 404—Problems in Business Finance	3
MGRS 420—International Finance	3
MGRS 462—Business and Society	3
MGRS 488—Strategic Management and Policy	3
Capstone course	3
Electives—business and nonbusiness	4
	31

Logistics Major

Students with career objectives in logistics, warehousing, transportation or manufacturing services may choose a logistics major. Course requirements for the logistics major include:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, logistics majors must complete:

	Credits
MGRS 325—Legal Environment and MGRS 373—Business Law I	6
MGRS 458—International Logistics	3

2. Eighteen credits required for all logistics majors.

	Credits
MGRS 461—Advanced Operations Management	3
MGRS 462—Business and Society	3
MGRS 351—Transportation	3
MGRS 455—Business Logistics	3
MGRS 457—Research Methods for Logistics	3
MGRS 459—Analysis and Design of Logistical Systems	3

3. Twelve credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

	Credits
ACC 309—Management Accounting	3
B A 480—Small Business Institute[1]	3
CIS 203—Microcomputers in Business	3
CIS 487—Decision Support Systems	3
MGRS 314—Market Structures and Channels	3
MGRS 316—Industrial Marketing	3
MGRS 345—Industrial Purchasing	3
MGRS 461—Advanced Operations Management	3
MGRS 482—Internship[1]	3
MGRS 490—Independent Study[1]	3
MGRS 491—Advanced Seminar in Management	3

The following course outline is suggested for logistics majors during their junior and senior years:

Junior Year

	Credits
ENGL 321—Expository Writing	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
MGRS 325—Legal Environment	3
MGRS 351—Transportation	3
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
MGRS 373—Business Law I	3
MGRS 457—Research Methods for Logistics	3
SPCM 213 or 217 or 329	3
Capstone course	3
	33

Senior Year

	Credits
MGRS 455—Logistics Management	3
MGRS 458—International Logistics	3
MGRS 459—Analysis and Design of Logistics Systems	3
MGRS 461—Advanced Operations Management	3
MGRS 462—Business and Society	3
MGRS 488—Strategic Management and Policy	3
Capstone course	3
Major electives (with written approval)	12
	33

Management Major

Students with career objectives in general management, human resource management, or entrepreneurship major choose one of three tracks in management:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, management majors must complete:

	Credits
MGRS 452—Comparative Management	3
EC 365—Labor Economics	3

2. Twelve credits required for all management majors:

	Credits
MGRS 367—Personnel Administration	3
MGRS 460—Management: Theory and Practice	3
MGRS 462—Business and Society	3
Select one course from any of the following options or obtain approval from the department chairman	3

3. **Human Resource Option:** Nine credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

	Credits
MGRS 453—Organizational Change and Development	3
MGRS 467—Employee Staffing and Selection	3
MGRS 468—Compensation Management	3
MGRS 471—Marketing Research	3
MGRS 491—Advanced Seminar in Management	3

4. **Entrepreneurship Option:** Nine credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

	Credits
ACC 309—Cost Accounting	3
ACC 313—Federal Taxation	3
B A 480—Small Business Institute[1] or MGRS 482—Internship[1]	3
MGRS 316—Industrial Marketing	3
MGRS 487—Entrepreneurship	3

5. **General Management Option:** Nine credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

	Credits
ACC 309—Cost Accounting or 313—Federal Taxation	3
B A 480—Small Business Institute[1] or MGRS 482—Internship[1] or MGRS 487—Entrepreneurship	3
MGRS 312—Consumer Behavior or 316—Industrial Marketing or 471—Marketing Research	3
MGRS 404—Problems in Business Finance	3
MGRS 481—Intercollegiate Business Games[1]	3
MGRS 490—Independent Study[1]	3
MGRS 491—Advanced Seminar in Management	3

[1]A maximum of three credits may be applied to major requirements from these courses.

The following course outline is suggested for management majors during their junior and senior years:

Junior Year

	Credits
EC 365 – Labor Economics	3
ENGL 321 – Expository Writing	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 325 – Legal Environment	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
MGRS 367 – Personnel Administration	3
SPCM 213 or 217 or 329	3
Select course from major field options	3
Elective-nonbusiness	2
	32

Senior Year

	Credits
MGRS 452 – Comparative Management	3
MGRS 460 – Management: Theory and Practice	3
MGRS 462 – Business and Society	3
MGRS 488 – Strategic Management and Policy	3
Human resource or entrepreneurship or general management options	9
Capstone course	3
Electives – business and nonbusiness	8
	32

Marketing Major

Marketing embraces those economic activities directed toward and incident to the flow of goods from the producer to the consumer or user. The marketing major may be appropriate for students with career objectives in advertising management, consumer behavior, general marketing, international marketing, marketing research, quantitative marketing, and retailing and distribution. Course requirements for the marketing major include:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, marketing majors must complete:

EC 321 – Intermediate Price Theory	3
MGRS 470 – International Marketing	3

2. Twelve credits required for all marketing majors:

MGRS 316 – Industrial Marketing OR MGRS 312 – Consumer Behavior	3
MGRS 462 – Business and Society	3
MGRS 471 – Marketing Research	3
MGRS 489 – Marketing Management	3

3. Nine credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

B A 480 – Small Business Institute[1]	3
JOUR 335 – Corporate Communications	3
MGRS 312 – Consumer Behavior OR MGRS 316 – Industrial Marketing	3
MGRS 314 – Marketing Structure and Channels	3
MGRS 422 – Promotional Management	3
MGRS 455 – Business Logistics	3
MGRS 481 – Intercollegiate Business Games[1]	3
MGRS 482 – Internship[1]	2 to 3
MGRS 490 – Independent Study[1]	1 to 3
MGRS 492 – Advanced Seminar in Marketing	3
PSY 362 – Social Psychology II: Group Structure and Process	3

The following course outline is suggested for marketing majors during their junior and senior years:

Junior Year

	Credits
EC 321 – Intermediate Price Theory	3
ENGL 321 – Expository Writing	3
MGRS 310 – Marketing Principles	3
MGRS 316 – Industrial Marketing OR MGRS 312 – Consumer Behavior	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 325 – Legal Environment	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
SPCM 213 or 217 or 329	3
Elective – nonbusiness	2
Electives – business and nonbusiness	3
	32

Senior Year

	Credits
Marketing courses (with written approval)	9
MGRS 462 – Business and Society	3
MGRS 470 – International Marketing	3
MGRS 471 – Marketing Research	3
MGRS 488 – Policy Formulation and Administration	3
MGRS 489 – Marketing Management	3
Capstone courses	6
Electives – business or nonbusiness	2
	32

Undergraduate Minor in Business Administration

This minor program is for non-College of Business Administration students only who desire a background in general business to complement their own major program.

	Credits
EC 101-102 – Macroeconomics and Microeconomics	6
ACC 201-202 – Introductory Accounting I and II	6
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 365 – Corporation Finance	3
	21[2]

International Business Minor

The purpose of this minor program is to provide business students with a broad base background in international business. The minor in international business should be considered as a complement to a major program in the College of Business Administration. This minor program is open only to College of Business Administration students.

Program

	Credits
ACC 420 – International Accounting	3
EC 458 – International Economics	3
MGRS 420 – International Finance	3
MGRS 452 – Comparative Management	3
MGRS 470 – International Marketing	3
Electives (refer to below)	3
	18

Electives

	Credits
EC 301 – Comparative Economics Systems	3
EC 367 – Comparative Labor Movements	3
EC 410 – Seminar in Social Economics (Multinational Corporations)	3
EC 459 – Future Development	3

Prelegal Education in the College of Business Administration

Information regarding the prelegal curricula is referred to in the College of Arts and Science section of this catalog. For those interested in obtaining an undergraduate degree in business in preparation for admission to a law school, informa-

[1] A maximum of three credits may be applied to major requirements from these courses.

[2] For non-College of Business Administration students declaring a minor in business administration, the lower-division prerequisites must be completed.

tion regarding prelegal advisement may be obtained from the chairman, Managerial Sciences Department, Room 311, Business Building.

Graduate Programs

Graduate Student Classifications

Graduate Special (GS)

Graduate special classification is for students who (1) do not wish to pursue a program leading to an advanced degree, (2) wish to pursue a program leading to an advanced degree but need to complete additional undergraduate course work or take an examination in order to meet the admission requirements for graduate standing, or (3) can demonstrate that they meet the requirements for admission to graduate standing but are unable to complete the application for admission prior to registration.

Admission to graduate special status requires filing official documents showing that the applicant has a baccalaureate degree from a fully accredited four-year college or university.

With graduate special classification a student may enroll for undergraduate credit in the College of Business Administration. *Advanced written approval of the director of graduate programs is required prior to registration for graduate special students to enroll in graduate-level courses in the college. Students who do not obtain proper approval are ineligible to enroll for graduate credit and will be cancelled.*

International students who are on a student visa are not eligible for admission to the graduate special classification.

Graduate special students may not enroll in 700-level MBA core courses.

Graduate Standing (MA)

Graduate standing classification is for those students who wish to pursue a program leading to an advanced degree. Admission to graduate standing permits a student to plan a degree program and to select an advisory/examining committee to oversee progress in the program (also see "Advisement").

Meeting the requirements for admission to graduate standing is a prerequisite for enrollment in 700-level MBA core courses.

Admission to graduate standing is the first of a series of progression requirements toward an advanced degree and does not constitute admission to candidacy for a higher degree.

In addition to meeting the requirements of the Graduate School, the following are the *minimum standards normally required for admission to graduate standing* in the College of Business Administration. (See the "Prescribed Program" section under Graduate School of this catalog for those students who do not meet the minimum requirements.)

For Master of Business Administration: A baccalaureate (or an advanced) degree from an accredited four-year institution with a satisfactory combination of undergraduate grade-point average and scores on the Graduate Management Admission Test (GMAT). The current admission formula is available from the office of the director of graduate programs. The GMAT must have been taken within the past five years and scores must be submitted prior to admission. The Graduate Record Examination (GRE) is not acceptable for admission to the MBA program.

For master's degree in economics:

1. A baccalaureate degree from an accredited institution with an overall GPA of at least 2.75 on a scale of 4.0.
2. Satisfactory scores on the GMAT or GRE Aptitude and Advanced Economics tests. Scores must be submitted prior to admission.
3. Previous completion of at least 18 semester credits of undergraduate course work in economics. Undergraduate prerequisites may be completed while enrolled at the university as a graduate special student (see "Graduate Special classification").

The GMAT and GRE tests are administered at many locations by the Educational Testing Service. Information and application forms may be obtained by writing directly to Educational Testing Service, Box 966, Princeton, NJ 08540.

Application Procedures

An applicant seeking admission to graduate standing in the College of Business Administration must submit to the Office of Admissions and Records (1) a completed Application for Admission form, obtainable from that office, (2) two official transcripts from each college or university where work has been completed or is in progress, (3) official scores on the GMAT (or GRE for economics degree applicants), and (4) the nonrefundable application fee.

Application Period

An applicant for graduate standing is only admitted into the MBA program at the start of the fall semester, and at that time is expected to begin the fall/spring sequence of 700-level courses.

All admission applications and credentials must be received in the Office of Admissions and Records by July 1 (or January 2 for economics for spring semester admission) to be considered for the fall semester.

If the student is applying for financial assistance or a graduate assistantship, the application should be completed and returned no later than February 1.

Certain exceptions are granted to permit spring matriculation. Contact the office of the director of graduate programs in the College of Business Administration for details.

International Students

Applications from international students are evaluated on an individual basis.

The minimum TOEFL score required for admission to advanced degree programs in business administration is 550.

International applicants must satisfy the medical examination and financial responsibility requirements prior to admission.

Advisement

The MBA is a college-wide degree program. Student advisement is provided by the director of graduate programs in the office of the dean. The director counsels a student through the program if Plan B (non-thesis) is elected. For a Plan A (thesis) student, the director provides advisement at least the first half of the program and then assists with the formation of the student's advisory/examining (thesis) committee. Thereafter, the committee works closely with the student to fulfill the remainder of the program requirements.

The department of economics advises all students enrolled in the master of arts or master of science programs in economics.

Students are cautioned that most graduate courses in the college are offered only one semester per academic year and program conflicts may result if proper advisement is neglected.

It is the policy of the college that all graduate standing students must meet with the director of graduate programs prior to initial registration to develop their official written programs of study. Students without an approved program of study may not continue in the program as this is essential for the students to be assured of completion of their curricula in a timely manner.

A student is permitted to alter the program of study during the program, but only after consultation with the office of the director.

Course Loads and Sequencing

Students must progress through the graduate programs in proper sequence. An economics student follows a program approved by the departmental adviser; the MBA student must complete courses in one tier before enrolling in more advanced courses in the upper tiers. Provision is made for transition semesters where a student may have only a partial credit load remaining in a particular tier and wishes to include one or more courses from the next. In such instances the student must consult with the proper adviser to ensure smooth progression through the program.

The director of graduate programs must approve course loads of greater than 12 credits in the MBA program.

Limitations on Transfer and S/U Courses and Courses Taken as Graduate Special

A maximum of nine appropriate graduate transfer credits may be accepted only from another business school fully accredited by the AACSB.

S/U graded courses are not acceptable for 600- or 700-level graduate credit in the MBA (except by examination in Tier I courses) or economics programs.

A maximum of nine graduate credits earned as a graduate special student may be used in satisfying requirements for any advanced degree.

Academic Standards and Probation

Graduate students in the College of Business Administration who do not maintain an overall GPA of at least 3.0 in all graduate courses are placed on probation. Those on probation may be prohibited from further enrollment if they fail to raise their overall GPA to at least 3.0 by the end of the first probationary semester. Exceptions are made only at the discretion of the director of graduate programs and the graduate school dean and may then be for a single additional semester should circumstances warrant. Additional information on the graduate academic standards requirements is included in the Graduate School section of this catalog.

Continuous Matriculation

A graduate student who discontinues enrollment for more than one year may be required by the director of graduate programs to apply for readmission. Enrollment is defined as registration in one or more courses for credit relevant to the student's degree program. (See "approved leave" under "Academic Requirements" in the Graduate School section.) Enrollment commences upon registering for the first course for credit.

In addition, a student who discontinues enrollment for more than one year forfeits the option to graduate under the degree requirements in effect for those years prior to readmission and may only use the requirements of the year of reentry or graduation.

Degrees

The College of Business Administration offers the following advanced degrees:

1. Master of Business Administration (MBA)
2. Master of Science in Economics
3. Master of Arts in Economics

The college also offers minors in many of the primary fields within the business administration discipline.

The master of science and master of arts degrees require the successful completion and defense of a thesis (Plan A). A nonthesis option (designated Plan B) is available to candidates for the Master of Business Administration degree.

Master of Business Administration (MBA)[1]

The Master of Business Administration degree program entails a general major in business administration. A field of concentration may be chosen from the disciplines of accounting, CIS, economics, finance, management, or marketing. A minor field may be chosen from another college in the university. Degree requirements are as follows:

Course Requirements
Core Courses and Primary Electives

Tier I — Basic Common Body of Knowledge (CBK) Core Courses: Knowledge contained in these elementary business administration core courses is required for all students in the program, but under certain circumstances waivers may be obtained if the student has recent and appropriate undergraduate preparation (see below). Tier I courses are listed on the chart for the MBA—program at a glance.

NOTES:

(1) Some of the courses are prerequisites for others within the tier.

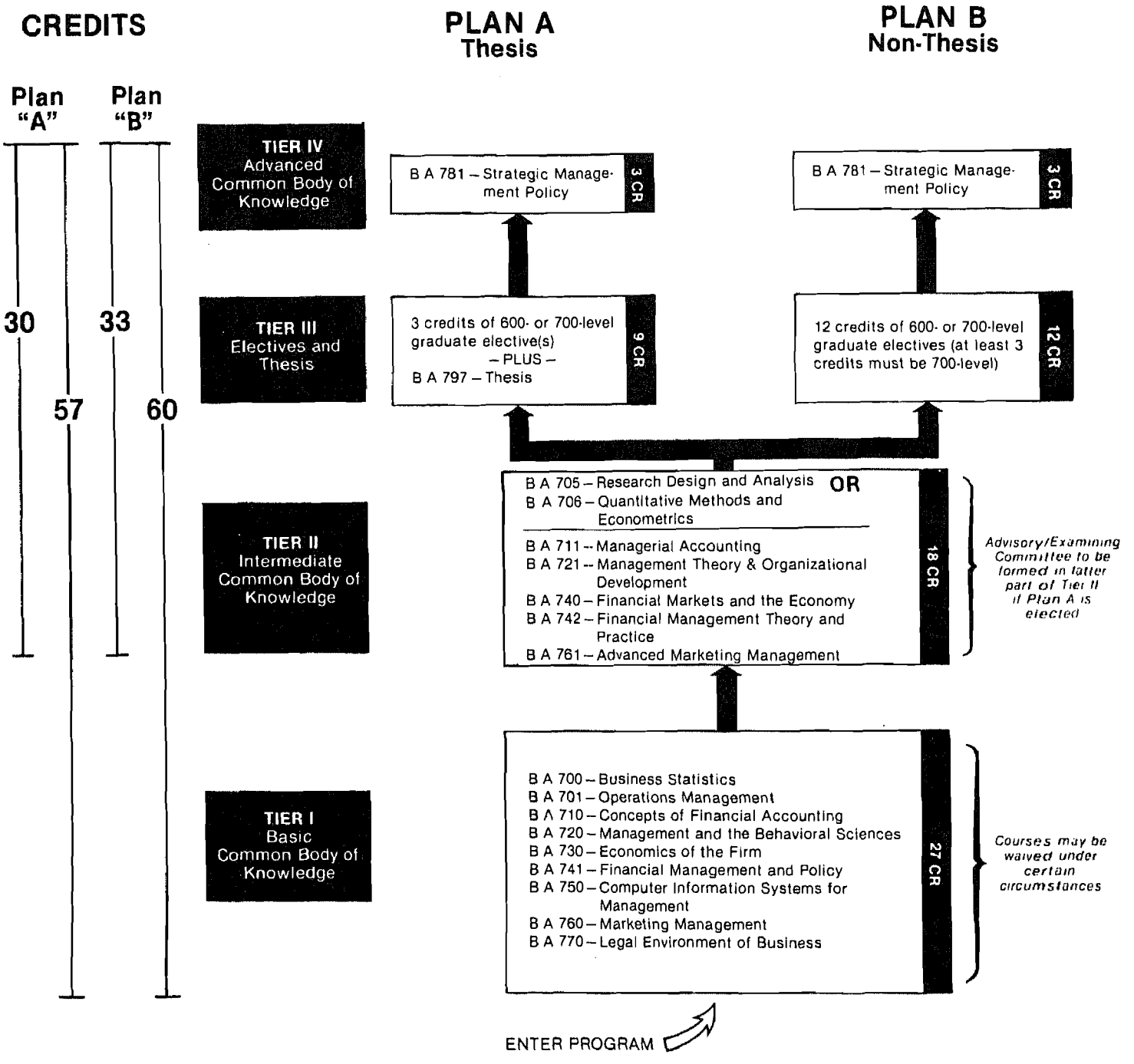
(2) Students who have scored below the 40th percentile on one of the GMAT components are cautioned that they should work to remove any deficiencies in that area.

(3) While the MBA program has no specific prerequisite courses, entering students are expected to currently possess basic competency in principles of calculus (MATH 211) and a variety of computer operating systems, with emphasis in modern PC business software. Applicants are referred to the course description of CIS 202, the computing laboratory, for a general list of topics and should see the secretary for graduate programs in the college for details on sources to acquire this knowledge. Competency in mathematics is also extended to linear algebra—sets and set operation, linear functions, systems of linear equations, matrices, and vectors.

(4) *Waivers of courses* in Tier I may be accomplished by requesting summary waiver of a course (if certain stringent

[1]For detailed information on the BS/MBA joint degree program with agricultural economics, please see the respective departments.

The MBA at the University of Nevada, Reno — Program at a Glance



criteria have been met) or by taking a proficiency examination in the subject. All summary waivers and testing must be completed before or during the first two semesters immediately following admission to graduate standing (MA) at the University of Nevada, Reno. Complete information is available from the director of graduate programs in the college. Waivers are not granted for courses in Tier II or above because these must be taken in residency.

Tier II — Intermediate and advanced business administration core courses: Tier II courses may only be taken after completion of requirements for Tier I. (Also see "Course Loads and Sequencing.")

Tier III — Electives and thesis: See advanced program options below.

Tier IV — Integrative "capstone" advanced course: The capstone course is taken in or near the final semester and most other core courses must have been completed at that time, specifically BA 721 and BA 761. Electives may be taken prior to, concurrently with, or follow the policy course.

NOTE: Nonbusiness graduate standing students are not permitted to register for Tier II and Tier IV MBA courses unless they are enrolled in an approved joint degree program at the University of Nevada, Reno.

Advanced Program Options (Thesis or Nonthesis)

Plan A (Thesis Option)[1]

The thesis option requires the satisfactory completion of:

1. All core courses in Tiers I, II and IV above.
2. Tier III: three credits of 600- or 700-level electives, which may be taken outside of the college only with the prior approval of the director of graduate programs, plus a thesis in business administration (six credits).

For Plan A major programs: At least 21 graduate credits (excluding thesis) beyond the Tier I basic core courses must be in business administration.

For Plan A major-minor programs: At least 21 graduate credits (excluding thesis) beyond the Tier I basic core courses must be in business administration with at least six credits in the minor field. Specific requirements for a minor field are set by the minor department.

Plan B (Nonthesis Option)

The nonthesis option requires the satisfactory completion of:

1. All core courses in Tiers I, II and IV above.
2. Tier III: 12 credits of 600- or 700-level electives, three credits of which must be at the 700-level. Three credits must be in business administration; the remaining credits may be from any University of Nevada, Reno academic program if prior approval is obtained from the director of graduate programs.

NOTE: A comprehensive examination is required for those students electing to graduate under the Plan B terms of pre-1985-86 catalogs. Complete information is available from the office of the director of graduate programs.

For Plan B major programs: At least 24 graduate credits beyond the Tier I basic core courses must be in business administration.

For Plan B major-minor programs: At least 24 graduate credits beyond the Tier I basic core courses must be in business administration, with at least an additional nine credits in a minor field. Specific requirements for a minor field are set by the minor department.

Total Credits Required for Program Completion

Graduate credits required for completion of each of the MBA options are as follows:

Plan A (thesis): 30 credits in Tiers II through IV, plus those courses required in Tier I.

Plan B (nonthesis): 33 credits in Tiers II through IV, plus those courses required in Tier I.

MBA Course Numbering System

700-709 Quantitative and Research
710-719 Accounting
720-729 Management/Behavioral
730-739 Economics
740-749 Finance
750-759 Computer/Management Information Systems
760-769 Marketing
770-779 Legal and Societal
780-789 Policy
790-799 Independent Study
Selected Topics
Thesis
Comprehensive Exams (if necessary)

Master of Science or Master of Arts in Economics

The master of arts and master of science degree programs are designed to be terminal degree programs for individuals aspiring to careers in applied economics. The programs are also valuable for individuals considering careers in finance, banking, or law, as well as other professions that require analytical and quantitative skills. The M.A. and M.S. programs also provide excellent preparation for those who are considering a Ph.D. in economics, public policy or in a related field.

Applied economists are employed in both the private and public sectors, and are often involved in forecasting, market analysis, policy analysis and advisory activities.

Specific course requirements for degrees in economics include EC 721 and 722, along with nine additional credits taken at the 700 level, a total of at least 24 credits of graduate-level courses, and six credits of thesis. The master of arts and master of science degrees both require a thesis, and the course work and thesis must be approved by a student's faculty advisory/examining committee. Each candidate's program of study must be approved by the student's departmental adviser and the director of graduate programs for the college. Students must also meet all university and college requirements for the master's degree.

For full admission into the M.A. or M.S. program in economics, a student should complete 18 credits in economics, including intermediate microeconomics, intermediate macroeconomics, and money and banking. Students may enter the graduate programs in economics in either the fall or spring semesters.

[1] A copy of the college regulations governing these is available from the office of the director.

The master's program may be completed in three or four semesters if the student is full time in the program. A typical schedule is:

First Semester

	Credits
EC 721	3
700-level elective	3
Electives	6

Second Semester

	Credits
EC 722	3
700-level elective	3
Elective	3

Third Semester

	Credits
700-level elective	3
Thesis	6

Graduate Minor in Business Administration

Graduate students with majors outside the College of Business Administration who wish to minor in business administration should complete at least three of the following advanced core courses: B A 711, 721, 740, 742, 761, as well as any preparatory courses which may be necessary for prerequisites. For a minor in accounting, finance, management, or marketing, at least six credits of graduate work beyond Tier I, including the basic and advanced courses in the specific area chosen, are required. For a minor in economics, a student at the graduate level must take at least 12 units in economics, including EC 721 and 722.

Inactive Graduate Programs

The master of science degree with majors in accounting, finance, management, and marketing is inactive.

Public Service

Advisory Board

There is an advisory board to the College of Business Administration, appointed by the board of regents. This board addresses itself to program issues, student needs, faculty recruiting, and community needs and interests. The following members served during the 1987-88 academic year: Michonne Ascuaga, vice president, administration and marketing, John Ascuaga's Nugget; John M. Bancroft, management consultant-adjunct faculty; Frank Bender, chief executive officer, Bender Warehouse Co.; Robert C. Blanz, President and Chief Executive Officer, Nevada Bell; Fianna Dickson Combs, Saddlehorn Development Co.; Joseph N. Crowley, president, University of Nevada, Reno; Kevin T. Day, vice president-corporate affairs, First Interstate Bank of Nevada; Bill Dickerson, Vice President-Division Director, R.R. Donnelley & Sons Company, Reno Manufacturing Division; Valerie Glenn, Rose Glenn Advertising; Phil Griffith, President, Fitzgerald Group; William Hartman, partner, Deloitte Haskins & Sells; Ronald S. Jeffrey, senior vice president and general manager, Harrah's; Richard Kudrna, chairman of board, Harvey's Resort Hotel; Gregg Lambert, vice president, Bender Records Services; Ken Lynn, Executive Director, EDAWN; David Line, branch manager, IBM Corporation; Luther Mack, proprietor, McDonald's Central; Donald McGhie, owner, McGhie Consulting Services; G. Andrew Pearl, shareholder, Anderson & Pearl; Patsy Redmond, Executive Vice President, Nevada Association of Realtors; Frederic Schwab, executive vice president, finance and administration, Porsche Cars of North America, Inc.; Patricia S. Thompson, city manager, City of Sparks; Diane Torrey, Executive Vice President, Northern Nevada Banking, Security Pacific Bank of Nevada; Ron Watson, Executive Vice President, Reno-Sparks Chamber of Commerce; Don W. Winne, Acting Dean, College of Business Administration, University of Nevada, Reno; Ron Zidek, managing partner, Grant Thornton.

College of Education

Frank D. Meyers, *Dean*

Departments of Instruction: counseling and educational psychology, curriculum and instruction, and educational leadership.

The main goal of the College of Education is to prepare professional personnel to function effectively as teachers, guidance personnel, and administrators in the challenging and demanding field of education.

A second major goal of the college is to stimulate in the education profession and the public a deeper interest in the promotion of good teaching practices and sound educational policies.

A third major goal is to contribute directly to the redefinition of educational goals and policies through research and development.

Support for maintaining these objectives is provided through the college departments of instruction, the Center for Learning and Literacy, the Learning and Resource Center, Simulation-Demonstration Facility, Early Learning Center (grades 1-3), and the Research and Educational Planning Center.

Degrees Offered

The college offers two undergraduate degrees — the bachelor of arts in education and the bachelor of science in education. Master's degrees are offered with majors in: counseling and educational psychology, educational leadership, and elementary, secondary, and special education. Education specialist degrees are offered in counseling and educational psychology, curriculum and instruction, and educational leadership. Doctoral degrees are offered in counseling and educational psychology, curriculum and instruction (reading education option only) and educational leadership.

Accreditation

The College of Education is accredited by the Northwest Association of Secondary and Higher Schools and Colleges for all teacher education, undergraduate, graduate curricula. It is also accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel, with the doctoral degree as the highest degree approved. These two accrediting bodies are recognized by the Council on Postsecondary Accreditation.

Licensure

By law all licenses in Nevada are granted by the Nevada State Board of Education. Students in the College of Education enrolled in the integrated five-year course of study are at the same time meeting the specific licensure requirements of the state board of education.

Elementary, special, or elementary/special education majors interested in participating in the interdisciplinary option in early childhood special education should contact an adviser in the Curriculum and Instruction Department. This option leads to a Nevada endorsement to teach early childhood special education.

Admission to Teacher Education Program

Effective July 1, 1988, students accepted into a teacher education program are required to complete an integrated five-year course of study which begins in the freshman year and continues through the fifth year. **The present four-year teacher preparation program will be phased out in May 1992.** Successful completion of this program leads to a bachelor's degree at the end of four years and a Nevada teaching license at the end of the fifth year. This program includes a combination of undergraduate and graduate coursework.

Also effective July 1, 1988, students are subject to new GPA requirements. Students must contact an adviser in the Department of Curriculum and Instruction regarding the course of study in the new program.

Students who plan on pursuing a program leading to initial licensure must be formally admitted to pre-professional standing in a specific teacher education program prior to enrollment in specific upper-division professional education courses and supervised internship. Students must meet these requirements:

1. Complete the pre-professional standing admission criteria and approval form and return it to the dean's office, Education Building, Room 101.
2. Successfully pass the Pre-Professional Skills Test in reading, writing, and mathematics. Students may attempt the PPST a maximum of three times. Students failing to pass all portions of the PPST are **removed from the teacher education program.** Students who do not pass the first administration of the PPST may retake the failed portion(s) at the next offering of the exam. After the second failure, the student must wait an academic year before taking the test for the third and final time. Students are encouraged to take the PPST before the end of the sophomore year.
3. Attainment of pre-professional standing is required prior to admission to methods courses.
4. Students seeking admission to elementary, special, or elementary/special education programs must have a 2.5 GPA or higher in all courses taken prior to receiving advanced standing. Those seeking admission to secondary education programs must earn a minimum 2.5 GPA or higher in the major teaching field and a minimum 2.3 GPA or higher in the minor teaching field.
5. Pass the speech and hearing test.
6. Be qualified in the professional judgment of the faculty.

Students from colleges other than education seeking teacher licensure must comply with the above requirements. They must also complete the requirements for supervised internship.

Students entering the College of Education with a baccalaureate degree should see a curriculum and instruction adviser immediately.

Program Completion Requirements

Candidates for the bachelor's degree in education and teacher licensure must satisfy these requirements:

1. Be admitted to the teacher education program.
2. Earn 128 credits or more in required and elective courses.
3. Complete 40 credits or more in courses numbered 300 or above.
4. Earn a 2.5 GPA or higher in the major teaching field, and a 2.3 GPA or higher in the minor teaching field (secondary education).
5. Earn a 2.75 GPA or higher in courses taken in the College of Education and a minimum 2.50 GPA overall.
6. Successfully pass exit examination(s) in the professional knowledge and subject matter areas of the National Teachers' Examination (NTE).
7. Meet all university core requirements, total credits, GPA, and resident credit.
8. Meet requirement for instruction in Nevada school law. This requirement usually is met through E L 101.

A maximum of 30 semester credits may be earned with S/U grades subject to the approval of the assigned education adviser.

Elementary/Special Education Teaching Curricula

Liberal Studies[1]	*Credits*
ENGL 101, 102, 321	9
Approved literature course	3
SPCM 113 or THTR 221	3
Art history/appreciation or music history/appreciation	3
MUS 324	3
ART 342	3
	24

Science and Mathematics[1]	*Credits*
MATH 115 or 105, 173, 174	9
GEOL 101 or 103	3
Physics or chemistry	3
BIOL 100	3
	18

Social Science[1]	*Credits*
W T 201, 202, 203	9
EC 101, 102 or 103	3
SOC 101, 102, 202, 204, 205 or 207	3
PHIL 100, 110, 112, 130, 203, 301 or 302	3
GEOG 106 or ANTH 101	3
	21

Health and Physical Education	*Credits*
NUTR 121 or SHR 471	3
RPED 305 or RPED 451	3
	6

Capstone Courses	*Credits*
(See adviser for details)	6
	6

Education Core	*Credits*
C I 270-271, 300, 310, 393, 431, 432, 464, 468 or 469, 471, 550, 620, 634	36
CEP 330, 601	6
E L 101	3
	45

Elementary Major	*Credits*
C I 463, 465, 551a, 605	22
ENGL 431	3
Electives	6
	25

Special Education Major	*Credits*
C I 311, 312, 415, 417, 418, 551b, 613	29
	29

Dual Elementary/Special Education Major	*Credits*
C I 311, 312, 415, 417, 418, 463, 465, 551d, 605, 613	43
ENGL 431	3
	46

Area of Concentration	*Credits*
(NOT REQUIRED for dual elementary/special education majors)	12
Bachelor's degree (minimum required)	128
Bachelor's degree, plus certification	157-166

Secondary Education (Bachelor of Arts Degree)

Communication Skills and Humanities[1]	*Credits*
ENGL 101, 102, 321	9
SPCM 113	3
PHIL 213 or 224	3
Fine arts core course	3
	18

Social Sciences[1]	*Credits*
HIST 281 or 282	3
Social science core course	3
W T 201, 202, 203	9
	15

Science and Mathematics[1]	*Credits*
Physical sciences	7
Biological sciences	7
MATH 115	5
Educational computing	3
	22-23

Professional Education—Undergraduate	*Credits*
C I 350, 450	3
CEP 330, 400	6
E L 101	6
	15

Certification (Fifth Year)

Pre-professional standing in the College of Education is required for admission.

First Semester	*Credits*
C I 604—Reading and Writing in Content Areas	3
C I 609—Handicapped Learners in the Regular Classroom	3
C I 620—Sociocultural Concerns in Education	3
C I 521, 529—(major field) and The Secondary School	3
C I 521, 529—(minor field) and The Secondary School	3

Second Semester	*Credits*
C I 557—Secondary School Internship AND	12
C I 615—Adolescent Learner in the Secondary Classroom, OR	3
C I 639—The Junior High/Middle School	3

Foreign language majors and minors must have demonstrated oral and written proficiency in their language for admission to the fifth year. Contact the Foreign Language Department for details.

English majors and minors should check with their curriculum and instruction adviser concerning required English courses not included in major/minor.

[1]Completion of this coursework automatically fulfils university core curriculum requirements.

Secondary Teaching Field

Students who wish to prepare to teach in junior and senior high schools must complete one major and at least one minor teaching field. Two teaching minors are recommended, especially for students planning to teach in the junior high school.

Students must select major and minor teaching fields from the list below. In general, it is expected that students will make a choice in the sophomore year, although this decision may be made at the beginning of the freshman year. Each student is assigned an adviser from the Curriculum and Instruction Department and the major and minor teaching fields. Outlines of the departmental and interdepartmental curricula requirements are available for major and minor teaching fields given below.

Secondary Education

(Grades 7-12)

Major Teaching Fields

An outline of specific requirements should be obtained from the Department of Curriculum and Instruction.

Agriculture
Art
Biological Sciences
Business Education
Chemistry
English
French
General Science
German
Health Education
History
Home Economics
Industrial Education
Journalism
Mathematics
Music
Physical Education
Physical Sciences
Physics
Political Science
Social Studies
Spanish
Speech Communication
Theatre
Trade and Industrial Education

(The student should secure adviser's approval before beginning a major or minor.)

Minor Teaching and Supporting Fields

An outline of specific requirements should be obtained from the Department of Curriculum and Instruction.

Agriculture
Anthropology
Art
Biological Sciences
Business Education
Chemistry
Computer Education
Earth Science
Economics
English
English as a Second Language
General Science
Geography
German
Health Education
History
Home Economics
Industrial Education
Italian
Journalism
Latin
Mathematics
Music
Occupational Education
Physical Education
Physical Sciences
Physics
Psychology
Political Science
Reading
Recreation
Russian
Social Studies
Sociology
Spanish
Special Education
Speech Communication
Theatre

Supervised Internship

Supervised internship experiences are provided in the public schools. Students are assigned to cooperating teachers employed by a school system.

Staff members of the College of Education are responsible for the supervision of interns, making regular visits to observe the student's teaching, and holding conferences with the student and the cooperating teacher concerning the internship experience.

Prerequisites for Supervised Internship

Only those students who have demonstrated scholarship, dependability, and a commitment to the profession of education are accepted for supervised internship. The failure on the part of the student intern to meet any requirements may result in the immediate forfeiture of internship privileges.

Applicants for supervised internship must:

1. Have achieved pre-professional standing in a teacher preparation program.
2. Maintain an overall GPA of 2.75 or higher in professional education courses and a cumulative GPA of 2.5 or higher in all courses (elementary, special, or elementary/special education).
3. Maintain a 2.5 or higher GPA in the major teaching field and a 2.3 or higher GPA in the minor teaching field.
4. Provide negative results of a tuberculosis screening immediately prior to beginning student teaching.
5. Successfully complete the professional knowledge and subject matter areas of the National Teachers' Examination during the first student internship experience.
6. Be qualified in the professional judgment of the College of Education faculty.

Admission to supervised internship is secured through the director of laboratory experiences for either the elementary/special education or secondary teaching field. Applications for the fall semester must be received by March 15 and applications for the spring semester must be received by September 15. Normally a student must have completed a minimum of 15 semester credits at the university prior to admission to student internship.

Requirements for Graduate Degrees

Master's Degree

Graduate students may major in counseling and educational psychology (with specializations in elementary, secondary, college, community, marriage and family, and career development); educational leadership (with specializations in elementary or secondary principalship, school administration, and the superintendency); and elementary, secondary, and special education (with specializations in reading, early childhood education, computer education, computer education/media, media/ library science, occupational education, behavior disorders, early childhood special education, learning disabilities, and mental retardation).

The specific requirements for the curriculum to be followed are adapted to the professional needs of the student. Students should not enroll in any course for graduate credit without first securing the approval of the department that such a course or courses are acceptable toward a major or minor.

General improvement courses for in-service education on the graduate level should also be considered by the student. These courses are also offered in extension or branch centers, workshops, short conferences, evening schools, and individual problem courses by appropriate arrangement. Inquiries are encouraged.

The master of arts, master of science and master of education degrees require 30 to 42 credits of approved courses with a major in education and a six-credit thesis, a total of 36 to 48 credits. A nonthesis master of arts or master of science degree 36 to 48-credit option may be selected. Program outlines and more specific information can be obtained from each of the three departments. All candidates for these degrees are required to complete a research course and a minimum of six credits of courses outside the specific department of study.

A maximum of six graduate credits of S/U grades may apply toward a master's degree requiring 36 semester credits or more.

Each candidate for the master of education degree must have completed a minimum of two academic years of satisfactory teaching or administrative experiences.

In addition to admission requirements specified by each department, applicants must be qualified in the professional judgment of the College of Education faculty.

Education Specialist (Ed.S.) Degree

The education specialist degree is a 32 to 33-credit, sixth-year degree program beyond the master's degree. Majors are offered in counseling and educational psychology, curriculum and instruction, and educational leadership. Any student desiring to pursue a program leading to the education specialist degree should consult the department in whose field the degree is offered.

Entrance Requirements

1. Possession of an accredited and relevant master's degree.
2. Post-master's experience relevant to the earned master's degree.
3. A GPA of 3.5 overall or higher in the master's degree program.
4. Acceptable scores on either the GRE or the Miller Analogies Test.
5. Departmental acceptance (standards may be higher than those stated in the university requirements).
6. Be qualified in the professional judgment of the College of Education faculty.
7. College of Education Graduate Studies Committee and dean acceptance.
8. Graduate School acceptance.

Program Completion Requirements

1. A minimum of 32 graduate credits beyond the related master's degree is required.
2. Six post-master's or 15 post-baccalaureate acceptable credits must be obtained from outside the College of Education.
3. At least 16 of the total credits must be taken in the department offering the degree, and at least 16 of the total credits must be taken in courses at the 700 level.
4. A maximum of six post-master's credits taken prior to admission to the degree program may be applied to the program upon admission.
5. A maximum of six post-master's credits taken off campus or through continuing education may be applied toward the degree.
6. A maximum of three graduate credits of S/U grades may apply toward the education specialist degree.
7. An Examining/Guidance Committee is appointed for each student in the Ed.S. degree program. The committee is comprised of four members of the graduate faculty: two are from within the department in which the student is pursuing the degree; one is from another department within the college; one is selected from a department outside the College of Education.
8. A research project or its equivalent must be completed. The form of the project may vary, but it must represent a contribution to the professional field in which the degree is obtained.
9. Requirements for the degree must be completed during a period not to exceed six years.

Doctor of Education (Ed.D.) Degree

Majors offered at the doctorate level are counseling and educational psychology, curriculum and instruction (reading and special education options only), and educational leadership.

Applicants for the doctor of education degree must meet general university requirements for admission, Graduate School requirements, College of Education requirements, and department requirements.

The basic program includes a minimum of 90 semester credits beyond the baccalaureate degree, including 12 credits of dissertation. A maximum of six graduate credits of S/U grades may apply toward the doctor of education degree. A residency requirement of at least two full-time summer or regular semesters with a minimum of 12 graduate credits must be completed.

Those individuals interested in the doctor of education program should contact the department concerned.

Academic Requirements

Each applicant must satisfy the regular graduate admission requirements listed for doctoral programs and the following special requirements:

The applicant must:

1. Have completed at least two full years of successful professional experience in a field appropriately related to the chosen major.
2. Have an earned master's degree from a regionally accredited institution in an area appropriately related to the chosen major.
3. Be recommended by the graduate faculty of the department in which the major is sought and approved by the College of Education Committee for Graduate Programs.

Degree Requirements

The regular doctorate graduate regulations apply with these modifications:

Full-Time Study: At least two full-time summer or regular semesters must be completed with a minimum of 12 graduate credits for each summer or regular semester. A maximum of

three credits of dissertation, independent study or workshop credits may be applied per full-time term. This requirement must be satisfied *after* admission to the doctoral program. (Special rules apply for curriculum and instruction, special education option. Consult an adviser for details.)

Program: A minimum of 90 semester credits beyond the baccalaureate degree, including 12 credits of dissertation, must be completed. In addition to 30 graduate credits from the master's degree, a maximum of 16 relevant graduate credits in an accredited program beyond the master's degree to which the applicant was admitted may be applied to the approved Ed.D. program of studies for the candidate. There are specific course requirements and qualifying, comprehensive, and final examinations.

Dissertation: The dissertation must involve scholarly and practical consideration of a professional problem designed to contribute to the improvement of educational practices or to the body of educational theory. The topic may (1) evolve from practical educational experiences, (2) be based upon directed field experiences, or (3) be a scholarly study of an educational problem involving theoretical implications.

Foreign Language: None is required.

Miscellaneous: The details of the examining committee, adviser, appropriate calendar, and development of an individually structured program are made available after an applicant is admitted.

Fees: All credits are assessed at the regular fee in effect at the time of registration.

COUNSELING AND EDUCATIONAL PSYCHOLOGY (CEP)

Faculty: Baldwin, Downing, Fisher, Harrison, Jenkins, Maples, Meyers, Pierce (Ch.)

The department offers graduate courses in counseling, guidance, educational psychology and school psychology for schools K to 12, in college student development, in adult vocational counseling, in community counseling and in marriage and family counseling. Adapted sequences exist to provide academic structure to meet all Nevada licensure requirements for professionals within the marriage and family, pupil- and student-personnel team. Entrance requirements and program patterns are available by inquiry. Admission and retention of students in all programs is subject to the professional judgment of the department faculty.

CURRICULUM AND INSTRUCTION (C I)

Faculty: Bear, Cheney, Combs, Cummings, Demchak, Faltis, Johns, Johnson, Johnston, Lafer, Luft, Maddux (Ch.), Marshall, McIntosh, Robinson, Rose, Templeton, Tooke, Warner

Adjunct Faculty: Harper, Hill

Elementary and Special Education

Undergraduate majors are offered in elementary, special, and elementary/special education. Completion of the program qualifies students for K-6 teaching licensure and a special education endorsement from the Nevada Department of Education. A master's degree student may major in elementary or special education. Master's degree graduates can also qualify to receive an elementary teaching license or a resource room endorsement from the Nevada Department of Education.

Secondary Education

A major in secondary education is offered at the master's level only. Undergraduate majors and minors are provided by approved curricula in teaching fields listed in the College of Education section. Copies of requirements are available in the department office.

Members of the department will assist graduate students in planning balanced programs suited to their educational objectives.

Media and Library Science Minor

A minor in instructional media/library science is offered for those individuals who are concerned with the utilization, coordination and administration of media materials. The minor provides relevant training for pre- and inservice educational technologists, librarians, teachers, administrators, politicians, business, industrial and military personnel trainers, commercial artists, television presentors, photographers, salespeople and others concerned with the storage and utilization of learning/communication materials.

Note: This minor program is not designed to prepare teachers or other school personnel with licensure in the media/library science specialty.

EDUCATIONAL LEADERSHIP (E L)

Faculty: Foldesy (Ch.), Holman, Matranga, Noonan, Peltier

The department offers support for teacher preparation through its undergraduate program in the areas of legal, historical, social and philosophical foundations. Graduate courses are offered leading to the master of arts, master of education, education specialist, and doctor of education degrees with a major in educational leadership. Appropriate selection of courses enables the graduate student to meet licensure requirements for an administrative position in the public schools of Nevada.

Service Divisions

Center for Learning and Literacy

Faculty: Bear (Assoc. Dir.), Templeton (Dir.)

The fundamental purposes of the Center for Learning and Literacy are to serve as a center for teaching and research in literacy, provide opportunities for undergraduate and graduate students to develop and apply competence in diagnosing and remediating reading and learning disabilities, and provide diagnostic and tutorial services in reading and learning

disabilities to individuals from the elementary to the adult level. Students with learning disabilities and reading problems are diagnosed and remediated in the facilities by certified teachers or prospective teachers. Fees are charged for the services to cover the cost of materials and operations. The center is equipped to demonstrate diagnostic and remedial techniques. Programs offered through the center prepare teachers in remedial education and could lead to an advanced degree. For further information, contact the Center for Learning and Literacy, College of Education, 784-4951.

Learning and Resource Center

Faculty: Sawyer (Dir.)

Adjunct Faculty: Bullis, Maples

The Learning and Resource Center in the Education Building provides instructional media facilities in diverse areas. These include:

Media Library — a cooperative effort with the Washoe County School District, houses an extensive children's book collection, course-related books and educational materials including resource files, audio and video tapes, filmstrips, study prints, slides, media kits, and Apple II microcomputers.

Media Production Facility — mounting and laminating pictures, lettering, duplication, overhead transparency making, book binding, and photographic copy stand.

Instructional Enhancement — Microteaching facilities, audio and video tape dubbing and editing, and consultation in the area of instructional design.

The Learning and Resource Center is open regularly from 7:30 a.m. to 8 p.m., Monday through Thursday, and 7:30 a.m. to 4:30 p.m. on Friday. Audiovisual equipment is available for use in the College of Education. Materials used in the media production facility are available to university faculty and students at nominal costs. For further information, contact the Learning and Resource Center, College of Education, 784-4971.

Research and Educational Planning Center

Faculty: Loesch-Griffin, D. (Dir.), Cline, D., Foldesy, E., Meyer, J., Weiser, R.

The center conducts sponsored research, development and training projects of state and national significance in education and related social science areas. Other activities of the center include consultation and technical services to the school districts of Nevada and research-related technical assistance to the College of Education faculty as well as faculty from other university colleges and departments.

College of Engineering

Jon A. Epps, *Dean*

The College of Engineering offers undergraduate instruction in civil, electrical, mechanical engineering and computer science, with a broader undergraduate program provided by the engineering physics curriculum. Graduate-level instruction is provided in civil, electrical, mechanical engineering and computer science. Specialized graduate programs in construction engineering and hyrdology/hydrogeology are also available.

Objectives

Engineers apply a knowledge of science, mathematics and a logical discipline of decision-making to the creation of systems needed by society.

The various engineering curricula provide the necessary basic and advanced knowledge to prepare students for positions of responsibility and leadership in their fields of interest, both now and in the future. The students are prepared to meet the technical and ethical demands of the profession and to become informed citizens in the community.

Accreditation

The civil, electrical, and mechanical engineering programs for the baccalaureate degree are accredited by Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (EAC/ABET). The members of the faculty maintain affiliations with their professional societies and various industrial and governmental organizations which keep them current in their fields, and also provide stimulation for both undergraduate and graduate research projects.

Cooperative Programs

Several cooperative programs are available, in which students may gain funds and experience during the summer (three months), summer and a semester (nine months) and two summers, plus an academic year (15 months).For details see the various baccalaureate sections and inquire at departmental offices.

Degrees Offered

Baccalaureate Degrees: Upon satisfactory completion of the prescribed curriculum the student in engineering becomes a candidate for the degree of bachelor of science in civil engineering, computer science, electrical engineering, engineering physics, or mechanical engineering.

Graduate Degrees: The degree of master of science may be earned in civil, electrical, mechanical engineering, computer science and hydrology/hydrogeology, subject to the general requirements of the university, the department concerned, and the Graduate School. A professional degree in construction engineering is offered through the civil engineering department.

The interdisciplinary Ph.D. degree in engineering may be earned in many areas including artificial intelligence, potential field phenomena, information theory, system analysis and research, materials science, applied mechanics, computer integrated manufacturing systems engineering (CIMSE), energy systems, water resources, structural analysis, electronic devices, biomedical systems, and biomedical instrumentation subject to the university, college, and Graduate School requirements.

Minor in Engineering

(For baccalaureate engineering students only)

1. A minimum program for a minor outside the major department consists of at least 18 credits of formal courses in the minor department, 12 credits of which are upper-division courses approved by the chairman of both the minor and major departments.
2. The 12 credits of upper-division courses in the minor department, alluded to in requirement 1, must be in addition to the credits in upper-division required courses in that department as specified by the curriculum of the major department.

Engineering as a Preparatory Degree

Engineering majors currently have one of the highest rates of acceptance to United States medical schools. They also have an advantage over other majors in acceptance to architecture, business, dental, and law schools; however, additional courses may be needed. Students interested in using engineering as a preprofessional degree should consult with the assistant dean.

Premajor Admission

Engineering applicants with a 3.3 high school GPA or above or an ACT mathematics test score of 28 or above (SAT mathematics test score of 580 or above) may select the engineering major of their choice. Students who do not meet this criteria must earn acceptance to an engineering major by enrolling in the College of Engineering as a pre-major (i.e., pre-civil, pre-electrical or pre-mechanical engineering) and completing a **freshman year engineering curriculum** as listed in this catalog, which applies to the major of their choice, with a 2.5 GPA.

Mathematics and Science Entrance Requirements

In addition to the university requirements (see Admission section of this catalog) for admission to the baccalaureate programs, the College of Engineering specifically recommends four units of mathematics (including trigonometry) plus three

units of science, including physics, chemistry, and one-half year of computer programming. Advanced placement classes in mathematics and science are valuable.

Advisement

It is mandatory that all students receive advisement from a faculty member assigned by the department to assist each student in planning and maintaining the academic standards needed to complete the degree requirements for their chosen program. Undeclared students are to be advised by the assistant dean. Students *are not* permitted to attend engineering classes without prior advisement from an engineering faculty representative.

Electives

All students attending the College of Engineering must satisfy the core curriculum requirements unless they entered the university prior to 1989 or transferred from another college. An acceptable list of courses approved by the departments for technical and humanistic social electives is available. Each student is cautioned to check the availability of courses desired since they may not be offered every semester. A sequence of at least two humanities or social science courses where one is prerequisite for the other is required to satisfy the college criteria.

Transfer Students

A student from outside the University of Nevada, Reno, who wishes to transfer to the College of Engineering and be accepted must follow general university policy for admission to advanced standing. Each such applicant is considered for admission based on their qualifications and the availability of space in the specific program for which application is being made.

Baccalaureate Degree Requirements

Each engineering student must complete specific university core curriculum requirements unless they entered the university prior to 1989 or transferred from another college. Students who are not subject to core curriculum requirements should consult with their academic adviser. *The university core curriculum requirements are satisfied by engineering core and departmental requirements.*

In any field of specialization, the degree requirements consist of the general university requirements, the engineering core, and the departmental requirements. This totals 129 to 132 semester credits.

Engineering students may register for a maximum of nine credits pass-fail (S/U) in any courses, except those courses specifically required in engineering, mathematics, science or which are classified as technical or science electives.

The freshman year is basically similar for all departments, thus transferring from one department to another in engineering during the freshman year can be done with minimal loss of credit or time. The specific departmental course requirements and suggested curricula to complete the requirements for the bachelor of science degree in the specific departments are presented on the following pages. The elective courses are selected by the student with the approval of the adviser and in general should be selected to broaden the student's education.

In addition to the general university requirement of a C average for graduation, the engineering student must also maintain a C average in the following courses: all engineering courses offered by the departments of the college; all basic science courses; all science electives; and all technical electives. Candidates for baccalaureate degrees from the College of Engineering may not use two-year technology courses in the determination of the average grade of C required in engineering courses. All engineering students must also take the national E.I.T. examination prior to graduation.

Field Trips: Any of the courses taught in the college may require field trips as an integral part of the educational experience. Field trips may be scheduled by the college's student organizations and they may be organized generally from within the college instructional structure in response to educational goals and needs.

Priority Acceptance in Engineering Courses

Should it become necessary, prioritized acceptance of students into those classes where demand exceeds availability is based upon the accumulative GPAs as established by academic performance in courses taken at the University of Nevada, Reno.

First semester transfer students from institutions other than the University of Nevada, Reno are accepted in engineering classes based upon the GPA as established in transfer by the Office of Admissions and Records.

Implementation of this policy is accomplished by GPA lists of students requesting space in courses at early (CARS) registration. Those students who do not obtain class space are identified by the instructor and/or chairman and are notified.

Application for Graduation

Major program curriculum requirements make it necessary to offer many of the required courses in alternate semesters only. This requires advance time to assist students in planning properly for graduation. Therefore, all applications for graduation in the College of Engineering must be filed in the dean's office fourteen (14) months prior to the anticipated date of graduation. It is each student's direct responsibility to file the application by this date as exceptions are not granted.

CIVIL ENGINEERING (C E)

Faculty: Bird, Douglas, Epps, Ebrahimpour, Holcomb, Krenkel, Leung, Maragakis, Norris, Saiidi (Ch.), Sanders, Siddharthan, Watts

Undergraduate Curriculum

The objective of the program of study in civil engineering is to give students an educational background from which they

can enter the practice of the profession of engineering. Civil engineering includes the planning, analysis, design, and construction of physical systems involving structures, soils, mapping, water resources, transportation, hydrology, water supply, wastewater disposal, and water quality management. The curriculum is designed to give an introduction to these disciplines. Students with an interest in environmental engineering can pursue an undergraduate track which emphasizes additional chemistry and microbiology classes.

Attention is directed to the existence of two cooperative training programs available for civil engineering students. These programs are offered jointly with the Civil Engineering Department and the following sponsoring agencies: the Nevada Department of Transportation and the Associated General Contractors of Nevada. Both programs offer financial assistance to the student through summer employment with the cooperating organizations. For further information write to the director of Civil Engineering Cooperative Training Programs.

The Nevada Chapter of the Associated General Contractors supports a fractional chaired professorship in the department. This support broadens the area of construction engineering.

The curriculum for the bachelor of science in civil engineering degree is as follows:

Freshman Year
First Semester

	Credits
C E 141—Engineering Measurements	3
C E 140—Introduction to Civil Engineering	1
CHEM 101—General Chemistry	4
ENGL 101—Composition I	3
Fine arts core curriculum course	3
MATH 215—Calculus I	4
	17

Second Semester

	Credits
C E 101—Engineering Graphics	2
ENGL 102—Composition II	3
MATH 216—Calculus II	4
PHYS 201—Engineering Physics I	3
PHYS 204—Engineering Physics Lab I	1
Social science core curriculum course	3
	17

Sophomore Year
First Semester

	Credits
C E 241—Statics	3
C E 243—Computer Programming for Civil Engineers[1]	3
MATH 217—Calculus III	4
PHYS 202—Engineering Physics II	3
PHYS 205—Engineering Physics Lab II	1
W T 201—Foundations of Western Culture	3
	17

Second Semester

	Credits
C E 246—Construction Materials	3
C E 368—Elementary Fluid Mechanics Lab	1
C E 390—Water and Waste Treatment	3
M E 242—Dynamics	3
M E 300—Introduction to Engineering Mathematics	2
M E 367—Elementary Fluid Mechanics	3
ENGR 201—Engineering Communications	3
	18

Junior Year
First Semester

	Credits
C E 364—Engineering Hydrology	2
C E 366—Highway/Transportation Engineering	3
C E 369—Concrete and Asphalt Lab	1
C E 372—Strength of Materials	3
C E 388—Engineering Economy	2
C E 389—Probability and Statistics for Civil Engineers	2
Restricted science elective[2]	4
	17

Second Semester

	Credits
C E 374—Metals and Timber Lab	1
C E 381—Structural Analysis	3
C E 471—Mathematical Methods in Civil Engineering[2]	3
C E 489—Water Resources Engineering I	3
C E 492—Fundamentals of Geotechnical Engineering	4
E E 201—Introduction to Network Analysis	3
	17

Senior Year
First Semester

	Credits
C E 484—Structural Steel Design	3
C E 485—Reinforced Concrete Design I	3
M E 371—Thermodynamics I	3
W T 202—The Modern World	3
Technical elective[2]	3
	15

Second Semester

	Credits
C E 491—Contracts, Specifications	2
W T 203—The American Experience and Constitutional Change	3
Technical elective[2]	6
Elective	1
	12
Total credits for B.S. in civil engineering	130

Students enrolled in civil engineering cooperative programs are required to take a one-credit seminar course (C E 250, 350, 450) at the appropriate level each summer they are enrolled in the program. These credits are in addition to the total required for other students.

Class attendance is mandatory in all civil engineering courses. Civil engineering students who need to repeat courses to meet the minimum GPA requirement set by the university or the college are allowed to repeat only courses in which they received a grade of "D."

Professional Degree in Construction Engineering

The department offers a post-baccalaureate professional degree in construction engineering. The program is funded by the Northern Nevada Division of the Associated General Contractors. Students entering the program must have a B.S. degree from an ABET accredited civil engineering program. The program is designed to be completed in two semesters. To obtain specific information about admission requirements, scholarships, and the program of study, contact the AGC professor, Civil Engineering Department.

Graduate Programs

Continuing education beyond the bachelor's degree is a necessity for those engaging in the practice of the profession of civil engineering. The master's degree programs are recommended for those who wish to engage in this profession.

The department offers programs leading to the master of science (M.S.) degree in civil engineering and the Ph.D. in

[1] C E 243 is a prerequisite for all 300-level civil engineering courses.

[2] Students electing to take the environmental option take CHEM 102 for the restricted science elective, C E 482 in place of C E 471 and CHEM 142 in place of one technical elective. The remaining technical electives are C E 497 and 499.

engineering. Detailed curricula in the general civil engineering field or with specialization in structures, soil mechanics and foundations, highway, materials, or environmental engineering are determined in conference between the student and the adviser. Requirements for graduate degrees are stated in the Graduate School section. Both Plan A and Plan B are available for M.S. programs. Specific departmental requirements for the M.S. program may be obtained from the Civil Engineering Department.

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy and hydrology/hydrogeology in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

Additional information on graduate programs may be obtained by writing to the chairman of the department. A limited number of teaching and research assistantships are available in civil engineering. Applications for assistantships are due by April 15 for the fall semester and by October 15 for the spring semester.

ELECTRICAL ENGINEERING AND COMPUTER SCIENCE (E E)

Faculty: Chatterjee, Egbert, Etezadi-Amoli, Fadali, B. Johnson, W. Johnson, Kleppe, Looney, Rawat (Ch.), Rao, Tacker, Trzynadlowski

Adjunct Faculty: P. Vohl, A. Scandurra

Undergraduate Curriculum

The program in electrical engineering is designed to provide a broad scientific background coupled with training in original and logical thought so the graduate can continue intellectual advancement and make significant contributions to the field of electrical engineering. The fundamental nature of the required courses provides the basis for concentration in depth in communications, computer, control, electronics, and power engineering.

The departmental requirements for the bachelor of science in electrical engineering degree are included in the following curriculum. This curriculum meets all graduation course requirements.

The professional EIT examination, administered by a state board of engineering registration, must be taken by all electrical engineering students before graduation during the senior year of study.

Freshman Year
First Semester

	Credits
Fine arts core curriculum course	3
ENGL 101 – Composition I	3
ECON 102 – Principles of Microeconomics	3
CHEM 101 – General Chemistry	4
MATH 215 – Calculus I	4
	17

Second Semester

	Credits
ENGL 102 – Composition II	3
C S 183 – Introduction to Computer Science	4
MATH 216 – Calculus II	4
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	15

Sophomore Year
First Semester

	Credits
MATH 217 – Calculus III	4
E E 231 – Computerized Matrix Algebra	3
M E 241 – Statics	3
PHYS 202 – Engineering Physics II	3
ENGR 201 – Engineering Communications	3
	16

Second Semester

	Credits
E E 200 – Network Analysis Lab	1
E E 201 – Introduction to Network Analysis	3
E E 202 – Materials in Electrical Engineering	2
C S 333 – Computer Logic Design	3
MATH 320 – Differential Equations	2
PHYS 203 – Engineering Physics III	3
W T 201 – Foundations of Western Culture	3
	17

Junior Year
First Semester

	Credits
M E elective (M E Dynamics or M E 371 Thermodynamics)	3
E E 301 – Circuits and Systems	3
E E 330 – Microprocessor Lab	1
E E 336 – Microprocessors	3
E E 361 – Power System Fundamentals	3
MATH 352 – Probability and Statistics	3
PHYS 206 – Engineering Physics Lab III	1
	17

Second Semester

	Credits
E E 320 – Analog Electronics Lab	1
E E 321 – Introduction to Electronics	3
E E 351 – Electric and Magnetic Fields	3
E E 380 – Control Systems Lab	1
E E 381 – Electrical Communications	3
E E 386 – Control Systems	3
W T 202 – The Modern World	3
	17

Senior Year
First Semester

	Credits
E E 490 – Electrical Projects Lab	2
Social science core curriculum course	3
W T 203 – The American Experience and Constitutional Change	3
Technical electives	9
	17

Second Semester

	Credits
E E 491 – Engineering Design/Analysis	4
Science or technical elective	3
Technical electives	9
	16

Total credits for B.S. in electrical engineering degree 132

Areas of Concentration

Senior technical electives consist of six courses (18 credits) to be selected from at least four of the following areas of concentration: *Communication:* E E 481, 482, 484; *Computer:* E E 431, 434, 439, 475, C S 437; *Control:* E E 486, 487; *Electronics:* E E 422, 423, 424, 426, 427, 428; *Fields:* E E 450, 451, 452, 455, 456, 458; *Power:* E E 461, 463, 466, 467, 468.

Engineering Physics

The program in engineering physics, administered by the Electrical Engineering and Computer Science Department, leads to the degree of bachelor of science in engineering

physics. The program is designed for the student who desires a background in engineering science, based on a firm foundation of physics, as well as an introduction to computer science; or who would like to pursue graduate studies in physics. The curriculum allows the student 18 credits for humanistic-social electives to be in accord with accredited engineering programs.

Freshman Year
First Semester

	Credits
CHEM 201 – General Chemistry for Scientists and Engineers	4
ENGL 101 – Composition I	3
C S 183 – Introduction to Computer Science	4
MATH 215 – Calculus I	4
	15

Second Semester

	Credits
CHEM 202 – General Chemistry for Scientists and Engineers	4
ENGL 102 – Composition II	3
E E 231 – Computerized Matrix Algebra	2
MATH 216 – Calculus II	4
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
MATH 352 – Probability and Statistics	3
MATH 217 – Calculus III	4
C S 283 – Introduction to Computer Science II	3
PHYS 202 – Engineering Physics II	3
PHYS 205 – Engineering Physics Lab II	1
W T 201 – Foundations of Western Culture	3
	17

Second Semester

	Credits
E E 201 – Introduction to Network Analysis	3
C S 333 – Computer Logic Design	3
MATH 320 – Differential Equations	2
PHYS 203 – Engineering Physics III	3
PHYS 206 – Engineering Physics Lab III	1
W T 202 – The Modern World	3
	15

Junior Year
First Semester

	Credits
E E 301 – Circuits and Systems	3
E E 321 – Introduction to Electronics	3
PHYS 351 – Mechanics	3
PHYS 361 – Light and Physical Optics	3
PHYS 363 – Optics and Spectroscopy Lab	1
W T 203 – The American Experience and Constitutional Change	3
	16

Second Semester

	Credits
E E 386 – Feedback Control Systems	3
PHYS 352 – Mechanics	3
PHYS 362 – Light and Physical Optics	3
PHYS 364 – Optics and Spectroscopy Lab	1
Elective	3
Science or technical electives	4
	17

Senior Year
First Semester

	Credits
PHYS 421 – Modern Physics I	3
PHYS 461 – Heat and Thermodynamics	2
PHYS 473 – Electricity and Magnetism	3
Elective	3
Science or technical electives	6
	17

Second Semester

	Credits
E E 462 – Engineering Design/Analysis	4
PHYS 422 – Modern Physics II	3
PHYS 426 – Introduction to Solid State Physics	3
PHYS 462 – Kinetic Theory and Statistical Mechanics	2
PHYS 474 – Electricity and Magnetism	3
Elective	3
	18

Total credits for B.S. in engineering physics degree 132

Computer Science

The new Bachelor of Science in Computer Science (BSCS) degree program is designed to satisfy the national guidelines of the Institute of Electrical and Electronics Engineers-Computer Society (IEEE-CS) and the Association for Computing Machinery (ACM). Freshmen and sophomore students who want to major in computer science are designated as precomputer science majors upon admission to the university. They may be accepted later into the computer science major based upon academic performance and the availability of resources. The program prepares the student in computer fundamentals, including logic design, microprocessors, digital system design, programming languages and techniques, data structures, operating systems and computer graphics. It also requires introductory level electrical engineering courses in such basic areas as communications, electronics and network analysis.

Freshman Year
First Semester

	Credits
C S 183 – Introduction to Computer Science I	4
CHEM 101 – General Chemisty	4
ENGL 101 – Composition I	3
MATH 215 – Calculus I	4
	15

Second Semester

	Credits
ENGL 102 – Composition II	3
Social science core curriculum course	3
MATH 216 – Calculus II	4
MATH 251 – Probability and Statistics	3
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
C S 283 – Introduction to Computer Science II	3
MATH 217 – Calculus III	4
MATH 381 – Discrete Mathematics	3
PHYS 202 – Engineering Physics II	3
W T 201 – Foundations of Western Culture	3
	16

Second Semester

	Credits
C S 233 – PC Assembly Language Systems Programming	3
E E 201 – Introduction to Network Analysis	3
PHYS 203 – Engineering Physics III	3
PHYS 206 – Engineering Physics Lab III	1
W T 202 – The Modern World	3
Technical elective	3
	16

Junior Year
First Semester

	Credits
C S 333 – Computer Logic Design	3
E E 311 – Circuits and Systems	3

MATH 320—Differential Equations	2
MATH 330—Matrix and Vector Algebra	3
W T 203—The American Experience and Constitutional Change	3
Computer science elective	3
	16

Second Semester

	Credits
C S 386—Computer Programming Languages	3
E E 321—Introduction to Electronics	3
E E 381—Electrical Communication	3
E E 435—Microprocessor Lab	1
E E 436—Microprocessors	3
Economics	3
	16

Senior Year
First Semester

	Credits
C S 437—Computer Graphics	3
C S 485—Computer Data Structures	3
E E 431—Digital Computer Design	3
Electives	6
Elective	3
	18

Second Semester

	Credits
C S 486—Principles of Computer Operating Systems	3
Computer science elective	3
E E 473—Digital Electronics	3
Technical electives	6
	15

Total credits for a bachelor of science in computer science 130

Graduate Curriculum

The practice of the professions of electrical engineering and computer science requires broad ability in both scientific thinking and the art of working with other people. As education for those who wish to engage in this profession with competence, four years of undergraduate study and at least one year of graduate study are strongly recommended. The undergraduate and graduate curricula at the university are planned to offer as much as possible of the breadth of education needed for leadership in the profession, as well as knowledge of the physical sciences and the basic professional techniques. There is no prescribed curriculum for the M.S. degree or the interdisciplinary Ph.D. degree in engineering; the student's program is individually selected in consultation with the adviser to meet the general requirements of the Graduate School as stated in that section. Graduate students will be required to select a graduate committee before the end of their first semester. The committee will be responsible for approving each student course requirement. An E E/C S graduate student will receive credit toward a degree for no more than nine hours of courses that have not been pre-approved by his graduate committee.

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 two-credit professional paper based on previously completed research or engineering experience.

The department also participates in an interdisciplinary program leading to a master of science degree with a major in computer science. For further information, refer to the interdisciplinary section of this catalog or contact the department chairman.

A manufacturing systems engineering program has been developed. The program is jointly sponsored by the electrical engineering and mechanical engineering departments. It will educate engineers to employ an integrated view of properties of materials, manufacturing process fundamentals, production system analysis, computer aided design and manufacturing, and robotics in systems design and synthesis. For further information, contact the department concerned.

MECHANICAL ENGINEERING (M E)

Faculty: Cengel, Dandini (consultant to ERDC), Evrensel, Fashbaugh, Gordaninejad, Greiner, Luo, McKee, Muszynska, Samanta, Snyder, Tracy, Turner, Wirtz (Ch.)

Mechanical engineers work in all segments of the economy. Challenging opportunities exist in both heavy and light manufacturing, in natural resource development, the utilities, the aerospace industry, and government, to name just a few. Some mechanical engineers focus on research and mathematical analysis, while others concentrate on practical applications in design and development.

The undergraduate curriculum is broadly based to accommodate a wide cross-section of career goals. Students take a core of required courses in engineering, the humanities, mathematics, and science, which is supplemented with elective courses. In this way they are introduced to basic engineering science and design concepts with the opportunity to develop specific career interests.

General Requirements

	Credits
English (writing): ENGL 101, 102; ENGR 201	9
Mathematics and Science: MATH 215, 216, 217; M E 299, 402; CHEM 101; PHYS 201, 202, 204, 205; METE 350	33
Humanities and Social Sciences: ECON 102; W T 201, 202, 203; Fine arts elective	18
Engineering Science and Design: M E 150, 201, 241, 242, 250, 310, 351, 367, 371, 391, 410, 452, 461, 465, 491; C E 372; E E 200, 201; 6 credits restricted elective	60
Mathematics/science/engineering elective; 6 credits M E elective	9

The mechanical engineering curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET). The program is designed so that required courses are used to meet minimum ABET requirements regarding engineering design and engineering science content. The mechanical engineering curriculum meets or exceeds all university core curriculum requirements.

Students enrolled in mechanical engineering cooperative programs may take a one-credit course (M E 198, 298, 398, 498) at the appropriate level each academic period they are enrolled in the program. These credits are in addition to the total required for other mechanical engineering students.

The chronological order in which courses should be taken is as listed. *Since many upper-division mechanical engineering*

courses have strict prerequisites, it is important that courses be completed in the order shown. Students who do not meet prerequisites for MATH 215 should attend summer school prior to their first semester.

Freshman Year
First Semester

	Credits
CHEM 101—General Chemistry	4
ENGL 101—Composition I	3
ECON 102—Microeconomics	3
MATH 215—Calculus I	4
	14

Second Semester

	Credits
ENGL 102—Composition II	3
M E 150—Introduction to Mechanical Design	3
MATH 216—Calculus II	4
PHYS 201—Engineering Physics I	3
PHYS 204—Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
MATH 217—Calculus III	4
M E 201—Computer Programming	3
M E 241—Statics	3
METE 350—Materials Science	3
PHYS 202—Engineering Physics II	3
PHYS 205—Engineering Physics Lab II	1
	17

Second Semester

	Credits
C E 372—Strength of Materials	3
M E 242—Dynamics	3
M E 250—Introduction to Computer Aided Design	3
M E 299—Differential Equations	3
ENGR 201—Engineering Communications	3
	15

Junior Year
First Semester

	Credits
E E 201—Introduction to Electrical Engineering	3
E E 200—Electrical Engineering Lab	1
M E 351—Machine Design	4
M E 367—Elementary Fluid Mechanics	3
M E 371—Thermodynamics I	3
M E 402—Numerical Methods	3
	17

Second Semester

	Credits
M E 310—System Analysis and Design	4
M E 391—Instrumentation	3
M E 461—Heat Transfer	3
Mechanical engineering restricted elective	3
W T 201—Foundations of Western Culture	3
	16

Senior Year
First Semester

	Credits
M E 410—Controls	3
M E 465—Optical Design	3
M E 491—Mechanical Engineering Lab	2
W T 202—The Modern World	3
Mechanical engineering restricted elective	3
Fine arts core curriculum course	3
	17

Second Semester

	Credits
M E 452—Design Synthesis	4
W T 203—The American Experience and Constitutional Change	3
Electives	9
	16

Total credits required for bachelor of science in mechanical engineering: 129

Graduate Curriculum

The department currently offers the master of science degree in mechanical engineering and participates in the interdisciplinary Ph.D. program in the College of Engineering. The department does not have a language requirement for the Ph.D.

The program of courses and research for both the master's and doctoral degrees is tailored to the background, the needs, and the interests of the individual student.

Candidates for the M.S. degree may satisfy the thesis requirement by original research. A candidate with acceptable professional engineering experience may substitute course work for the thesis upon approval of the department faculty.

Some of the areas of research currently in progress are laser anemometry, temperature control in electronic devices, mechanics of fiber reinforced composites, solar energy collection and systems, robotics, heat transfer augmentation, and biofluid mechanics.

For details of the graduate programs, see the Graduate School section.

College of Human and Community Sciences

Vacant, *Dean*

The College of Human and Community Sciences is composed of faculty whose primary focus is on the needs of individuals and families over the lifespan and across all social strata and income levels. The course of study emphasizes the human dimension in community life. Parenting, aging, communicating, and maintaining individual health and fitness are examples of topics addressed. The college's mission is excellence in interdisciplinary undergraduate and graduate preparation, research, and service to the community. The college includes five departments: community health sciences; human development and family studies; nutrition; recreation, physical education and dance; and social work. There are also four university-wide centers in the college: the Child and Family Research Center, the Geriatric and Gerontology Center, the Health Career Advisement Center, and the Senator Alan Bible Center for Applied Research.

COMMUNITY HEALTH SCIENCES (CHS)

Faculty: Hayes, Marinelli, Reed (Ch.), Thornton

Undergraduate Degree: bachelor of arts
Major: health education
Undergraduate Degree: bachelor of science
Majors: predentistry, premedicine, prephysical therapy

This department integrates education for the health-related fields of health education and predentistry, premedicine, and prephysical therapy. The program addresses the growing need for health professionals educated with a broad base in the physical sciences plus a component of biomedical ethics, clinical interviewing, humanities, and health. In addition to the above majors, health resources provides preparatory courses for careers as a dental assistant, chiropracty, mortuary science, optometry, pharmacy, physician assistant, occupational therapy, podiatry, and public health.

Career Potential

The health education program prepares students for careers as community health educators, health agency program planners, and health teachers.

The pre-professional programs prepare students for advanced education in dentistry, medicine, occupational therapy, pharmacy, physical therapy, and podiatric medicine.

HUMAN DEVELOPMENT AND FAMILY STUDIES (HDFS)

Faculty: Essa, Everts (Ch.), Gunn, Halderman, Havercamp, Hilton, Kees-Martin, Murray, Tripple

Undergraduate Degree: bachelor of science
Major: human development and family studies
Minor: human development and family studies
Graduate Degree: master of science
Major: human development and family studies

This program addresses the quality of life of individuals and families. Students may choose a particular time in the life span as an area of specialization. The department brings an integrated perspective to the study of human development throughout the life span and family roles, relationships, processes, and management of resources in changing social institutions.

Career Potential

These programs prepare students for careers as administrators of child development or family services programs, child development specialists, curriculum coordinators and teachers of programs for young children, school age program coordinators, youth program specialists, community education instructors, parent educators, senior center coordinators, family financial planners, consumer advocates and family public policy advocates.

NUTRITION (NUTR)

Faculty: Hughes, Pritsos, Read (Ch.)

Undergraduate Degree: bachelor of science
Major: nutrition
Options: clinical dietetics, nutrition science
Minor: nutrition
Graduate Degree: master of science
Major: nutrition

This department offers a bachelor of science degree in nutrition with two options: clinical dietetics or nutritional sciences. The student will learn about human anatomy, physiology, microbiology, and biochemistry, and how each of these relate to nutrition; human nutrition in health and disease as it applies to various stages of the life cycle; food science, techniques of food preparation and nutrient composition of food; and nutrition assessment, planning, and intervention and evaluation. Focus is on communication and education in helping people make healthy food choices.

Career Potential

The clinical dietetics option prepares the student for either an accredited internship or an approved AP4 program in preparation for the National Registered Dietitian Examination and work as a registered dietitian in community nutrition, hospital settings, and private practice.

The nutritional science option prepares the student for graduate work and nutrition research. Students pursuing this option generally would complete advance degree (M.S. or Ph.D.) work in nutrition, and conduct nutrition research.

RECREATION, PHYSICAL EDUCATION, AND DANCE (RPED)

Faculty: Bailey, Ballew, Laughter, Legarza, Loper (Ch.), Magney, Newell, Plummer, Rippee, Sabatini, Twardokens, Young

Undergraduate Degree: bachelor of arts
Major: physical education
Option: dance emphasis
Minor: dance
Undergraduate Degree: bachelor of science
Major: physical education, recreation
Options: fitness management, municipal recreation
Minor: physical education, recreation
Graduate Degree: master of science
Major: physical education

The relationship between exercise, fitness, health, recreation, and movement science has increasing importance in issues of public health, rehabilitation, stress reduction, mental health, and individual well-being. This department prepares physical education teachers as well as recreation, dance and fitness professionals to serve the needs of public organizations and private businesses.

Career Potential

This department prepares students as athletic coaches and trainers, instructors and professionals, fitness counselors and directors, physical education teachers in kindergarten through 12th grades, and recreation directors.

SOCIAL WORK (S W)

Faculty: Albers, Bisno (Ch.), Harrison, Henry, Lamb, Larsen, Pierce, Pillard, Welker

Undergraduate Degree: bachelor of arts
Major: social work
Graduate Degree: master of social work
Major: social work

The baccalaureate program offers course and field work that prepares individuals for beginning-level professional social work practice. It also offers preparation for admission to graduate school in such fields as corrections, counseling, law, public health, social work, or public administration. Graduates of this program are eligible to take the examination to be licensed as social workers.

The bachelor's course of study is accredited by the Council on Social Work Education, and the master's program is in the process of seeking initial accreditation.

Career Potential

Students learn knowledge, theories, skills, and professional values that enable them to become social workers in such programs as child welfare, community development, corrections, delinquency, employee assistance, health settings, mental health, mental retardation, planning and administration, public assistance, and services to the aged.

Instructional Programs

University Core Requirements

The completion of core curriculum requirements is necessary prior to the award of any baccalaureate degree. For further information see the section on University Core Curriculum Requirements.

College Requirements

The following requirements apply to all majors offered in the College of Human and Community Sciences:

1. A minimum of 33 credits of coursework in a major.
2. A minimum of 40 credits of coursework at the upper-division level.
3. A minimum of 128 total credits.
4. Completion of HCS 101 for three credits. This course requires 45 hours of community service volunteer work.

Baccalaureate Majors

Health Education Major

The bachelor of arts degree with a health education major prepares individuals to plan, implement and evaluate health education programs designed to improve the health of the community. Courses in the natural sciences, social and behavioral sciences and supervised field work enable the graduate to explain and interpret the latest knowledge and developments in the health field. This strong degree program also prepares the student to pursue graduate studies.

Major Interest Subject	*Credits*
CHS 220—Introduction to Social and Health Services	4
CHS 300—Communication Skills in Social and Health Care	3
CHS 325—Foundations of Health Education	3
CHS 354—Personal Health and Lifestyle	3
CHS 452—Advanced Studies in Health Systems and Policy	3
CHS 462—Epidemiology	3
CHS 470—Seminar in Health Education	3
CHS 475—Human Values and Professional Ethics	3
CHS 489—Field Work in Health Education	3
S W 390—Introduction to Social Work Research	3
General Requirements	
BIOL 262, 263—Human Anatomy and Physiology	6
PLUS six credits from electives in the department	6

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor.

Human Development and Family Studies Major

The bachelor of science degree with a major in human development and family studies prepares students to work with individuals of all ages and their families. Study of theory and research findings are integrated with a variety of supervised field experiences. Emphasis is on how individuals interact within the family system and with the larger socio-economic environment. All majors study human development throughout the lifespan, interpersonal relationships, family roles, family processes and management of resources in a changing society. An area of concentration may be selected in child development, adult development and aging, family studies,

family resource management, early childhood education or early childhood special education, or general human development and family studies.

Required Courses	*Credits*
HDFS 132—Child Guidance and Parenting	3
HDFS 233—Practicum with Children and Families	2
HDFS 274—Individual and the Family	4
HDFS 341—Personal Finance	3
HDFS 371—Family Resource Management	3
HDFS 430—Human Sexuality	3
HDFS 431—Advanced Studies in Human Development and Family	6
HDFS 433—Administration of Child and Family Services	3
HDFS 434—Family Education and Intervention Programs	3
HDFS 436—Family Interaction	3
HDFS 438—Children and Families in a Multiethnic Society	3
HDFS 458—Families and Public Policy	3
HDFS 470—Professional Internship	3
HDFS 472—Contemporary Family Issues	3
NUTR 121—Human Nutrition	3
NUTR 422—Nutrition in the Life Cycle	1
	49

Area of Concentration

Students select 18 credits in addition to the major requirements to concentrate in one of the following areas: family studies, child and adolescent development, adult development and aging, family resource management, early childhood/early childhood special education or general human development and family studies. It is essential for students to contact their adviser in developing an area of concentration.

Additional Required Courses	*Credits*
Sociology	3
EC 101 or 102	3
SOC/PSY 210 or 392, S W 390	3
SPCM 113, 217 or 329	3
ENGL 321; S W 324; SPCM 315, 329, 411, 435	6

Nutrition Major

The bachelor of science degree in nutrition, with either the clinical dietetics or nutritional sciences option, requires a minimum of 128 credits. At least 40 credits must be earned in courses numbered 300 or 400. A maximum of 30 required or elective credits on an S/U basis may be utilized as part of the required credits.

Clinical Dietetics Option

For an individual to become a registered dietitian, the American Dietetic Association requires that students (1) complete an undergraduate degree in nutrition which includes courses that comprise an approved Plan IV program, and (2) complete an accredited internship or an approved AP4 preprofessional practice plan. The clinical dietetics option consists of required and elective courses approved by the American Dietetic Association as a Plan IV program. Students who complete the clinical dietetics degree/Plan IV program are eligible upon graduation to complete the second step (completion of either an accredited internship or an approved AP4 preprofessional practice plan) required to become a registered dietitian. With a bachelor of science consisting of an approved Plan IV and completion of the internship/AP4, students are then eligible to sit for the national registration examination for dietitians and employment as a registered dietitian. As a registered dietitian, students may choose from a variety of careers including clinical/hospital dietetics, administrative dietetics, community nutrition and private or consulting nutrition services.

The following courses are required for the clinical dietetics option:

Natural science and mathematics courses: CHEM 101, 102, 142, 143; BIOL 101, 251, 262, 263; MATH 115.

Social sciences: SOC/PSY 101; EC 101 or 102.

Professional courses: NUTR 223, 225, 270, 320, 419, 426, 427, 440, 470.

Other required courses: CEP 330; HDFS 274, 438; MGRS 323; and a course in either statistics or computer literacy.

Recommended Courses

Freshman Year	*Credits*
EC 101 or 102	3
ENGL 101, 102	6
CHEM 101	3
HCS 101	3
MATH 115	5
NUTR 225	3
PSY 101 or 102	3
Elective	2
Fine arts core curriculum course	3
	31

Sophomore Year	*Credits*
BIOL 262, 263	6
CHEM 102, 142, 143	8
HDFS 274	4
NUTR 223	3
SPCM 113	3
W T 201, 202	6
Electives	5
	35

Junior Year	*Credits*
BIOL 251	3
CEP 330	3
MGRS 367	3
NUTR 320, 321, 419	9
W T 203	3
Computer literacy or statistics	3
Electives	8
	32

Senior Year	*Credits*
HDFS 438	3
NUTR 426, 427, 440, 470	9
Capstone courses (core curriculum)	6
Electives	14
	32

Nutritional Sciences Option

The nutritional sciences option is focused on developing research skills and is designed to prepare students for graduate work/research in the area of nutrition. In addition to the university core curriculum requirements and the college requirements, the following course work is required for nutritional science students:

Natural science and mathematics courses: BIOL 101, 102, 201 or 202, 251, 262, 263; CHEM 101, 102, 343, 344, 345; MATH 115, 213; PHYS 151, 152, 153, 154.

Social science courses: PSY 101 and SOC 101 plus an additional nine credits of social science.

Nutrition courses: NUTR 223, 419, 426, 427, 433, 440 plus three credits of additional nutrition.

Recommended Courses

Freshman Year	*Credits*
BIOL 101, 102	4
CHEM 101	4
ENGL 101, 102	3-6
HCS 101	3
MATH 115	5
PHYS 151, 152	6
PSY 101	3
Elective	1
	29-32

Sophomore Year	*Credits*
BIOL 201 or 202; 262, 263	9
CHEM 102, 343	7
NUTR 223	3
PHYS 153, 154	6
W T 201, 202	6
Elective	1
	32

Junior Year	*Credits*
BIOL 251	3
CHEM 344, 345	5
MATH 213	3
NUTR 419	3
SOC 101	3
W T 203	3
Social sciences	6
Nutrition elective	3
Electives	3
	32

Senior Year	*Credits*
B CH 400, 403	6
NUTR 426, 427, 433, 440	12
Capstone courses (core curriculum)	6
Social sciences	3
Electives	5
	32

Physical Education Major

The bachelor of science or bachelor of arts degree with a major in physical education offers a wide range of courses in the theory and teaching of athletic and physical fitness activities. Students in this major may be licensed to teach in junior high, middle and high school by taking a prescribed number of courses in the College of Education. These include 10 credits of supervised teaching in the public schools and specialized courses in teaching methods.

Curriculum	*Credits*
HCS 101	3
University core curriculum requirements	33-36
RPED 201, 204, 253, 257, 401, 403, 405, 406, 451, 452	24
RPED 251, 250, 255, 256	2
RPED 252, 254, 258, 259	2
Additional RPED courses	10
Minor requirements	18-24
Related field	22
Electives	7-11
	128

Physical Education Major With Emphasis in Dance

Students in this major seek careers in the performing arts or teaching for public and private institutions. The course of study emphasizes technique, choreography, production and teaching methods.

Curriculum	*Credits*
HCS 101	3
MUS 101	3
RPED 110-122, 219, 253, 261, 262, 263, 264, 265, 363, 364, 365, 403, 461, 493	39
THTR 119	3
University core curriculum requirements	33-36
Minor requirements	18-21
Electives	23-26
	128

Predentistry and Premedicine Majors

This major includes course and field work that prepares the student for admission to health related graduate or professional schools such as medical school and dental school. The graduate is also prepared for advanced training in such fields as public health, health planning and administration, and community health education.

Students wishing to pursue a premedical or predental course of study should complete a bachelor of science degree. Occasionally, a student is accepted to professional school prior to completing baccalaureate degree requirements. Predental or premedical students who transfer to approved professional schools, and who wish to earn a baccalaurate degree from the University of Nevada, Reno, should refer to the Registration and Records section of this catalog under Requirements for Graduation — Resident Credits Requirement. Additional information about this option and about admission requirements for schools of dentistry and medicine are available from the Health Careers Advisement Center, Sarah Fleischmann Building, Room 214.

Required Courses	*Credits*
Departmental Requirements	
CHS 220—Introduction to Social and Health Services	4
CHS 300—Communication Skills in Social and Health Care	3
CHS 354—Personal Health and Life Styles	3
CHS 452—Advanced Studies in Health Systems and Policy	3
CHS 475—Human Values and Professional Ethics	3
General Requirements	*Credits*
Chemistry:	
CHEM 101-102—General Chemistry	8
CHEM 343-344—Organic Chemistry	6
CHEM 345-Organic Chemistry Lab	2
Behavioral Science:	
PSY 101—General Psychology	3
PSY 441—Abnormal Psychology	3
Additional behavioral science course	3
Biology:	
BIOL 101-102—General Biology and Lab	4
Additional credits to be selected from the following (six credits must be upper division): BIOL 201, 208, 251, 290, 414, 450, 468, 475	11
Physics:	
PHYS 151-152—General Physics	6
PHYS 153-154—General Physics Lab	2
Mathematics:	
MATH 213—Calculus for Science I	3
	67

Prephysical Therapy Major

The bachelor of science degree with a major in prephysical therapy is designed to meet the admissions requirements of accredited schools of prephysical therapy as recommended by the Council of Medical Education and the American Medical Association.

To be certified as a physical therapist, the student must complete a professional or certification program from an accredited school of physical therapy. Currently, Nevada has no such program; however, Nevada does participate in the Western Interstate Commission for Higher Education (WICHE) program to place students in physical therapy schools in the Western states. Students can apply to accredited certification programs out-of-state at the beginning of their junior year. A few schools accept transfers at the end of the junior year.

For additional information on the prephysical therapy program and the various options available to the student, contact the Health Career Advisement Center, Sarah Fleischmann Building, Room 214.

Required Courses	*Credits*
Departmental Requirements	
CHS 220—Introduction to Social and Health Services	4

CHS 300—Communication Skills in Social and Health Care	3
CHS 354—Personal Health and Life Styles	3
CHS 452—Advanced Studies in Health Systems and Policy	3
CHS 475—Human Values and Professional Ethics	3
Mathematics:	
MATH 110—College Algebra	3
Biology:	
BIOL 101-102—General Biology and Lab	4
BIOL 201—Animal Biology	3
BIOL 262-263—Human Anatomy and Physiology I, II	6
Chemistry:	
CHEM 101-102—General Chemistry	8
CHEM 142-143—Introductory Organic Chemistry and Lab	4
Recreation and Physical Education:	
RPED 403—Kinesiology	3
RPED 406—Physiology of Exercise	3
Physics:	
PHYS 151-152—General Physics	6
PHYS 153-154—General Physics Lab	2
Behavioral Science:	
PSY 101—General Psychology	3
PSY 441—Abnormal Psychology	3

Additional electives such as statistics, human growth and development, and microbiology should be selected on the basis of the requirements of the specific physical therapy schools to which the student plans to apply.

Recreation Major

Fitness Management Option

This option incorporates study in exercise, lifelong physical activity, human physiology and exercise, nutrition, fitness assessment, and motivation. Combining these with an understanding of business principles prepares students to work in public and private fitness centers in both management and consulting capacities.

Curriculum	*Credits*
RPED 251, 256, 257, 290, 302, 341, 342, 343, 370, 396, 403, 406, 408, 421, 492	38-40
Nutrition:	
NUTR 121, 422c, 422d, 422e, 422f, 427	10
Related Subjects:	
MGRS 367—Personnel Administration	3
CIS 201—Introduction to Computer Systems	3
CIS 202—Computer Information Systems Lab	1
CIS 203—Microcomputers in Business	3
ACC 201-202—Introductory Accounting I, II	6
BIOL 262-263—Human Anatomy and Physiology I, II	6
College requirements	3
Electives	19-21
University core curriculum requirements	36
	128

Municipal Recreation Option

This option prepares students to plan, organize, administer and manage intensive programs of athletic and physical fitness activities. Designing and maintaining facilities for community based recreation programs and managing parks and sports complexes for public use are included. Students find careers in state, county and city recreation programs.

Curriculum	*Credits*
HCS 101	3
University core curriculum requirements	33-36
Major Requirements:	
RPED 201—Introduction to Recreation and Physical Education	3
RPED 204—Methods of Planning and Evaluation in Activities	2
RPED 256—Methods in Teaching Outdoor and Recreational Games	1
RPED 257—Methods in Teaching Physical Fitness and Rhythmatic Exercise	1
RPED 270—Advanced First Aid and Emergency Care	2
RPED 302—Organizational and Administration of Intramural and Recreation Programs	2
RPED 341—Planning Concepts for Outdoor Recreation	3
RPED 342—Community Recreation	3
RPED 351—Physical Education Activities for Primary Grades K-3	3
RPED 352—Physical Education Activities for Intermediate Grades 4-8	3
RPED 421—Lifetime Sports Program	3
RPED 440—Recreation Administration	2
RPED 492—Recreation Internship	8-10
Minor requirements	18-21
Electives	32-37
	128

Social Work Major

The bachelor of arts degree with a major in social work offers course and field work that prepares students for entry-level professional social work practice and licensure as a social worker in the state of Nevada upon examination. The student is also prepared for admission to graduate school in such programs as social work, public health, counseling, correction, law, or public administration. Through the unique combination of course work and field experience, students learn the knowledge, theories, skills, and professional values that enable them to function as social workers in such programs as public assistance, child welfare, mental health, mental retardation, rehabilitation, delinquency, corrections, community development, and planning and administration.

The student is required to complete 34 credits in the department, 28 credits in required courses. The remaining six credits are elective and should be selected in consultation with the adviser. Twenty-one credits are required outside the department.

Additionally, students who major in social work must either (1) complete a fourth semester college course in a foreign language or demonstrate equivalent proficiency, or (2) complete departmental required options in cultural diversity. Specific courses in cultural diversity to meet this requirement can be determined with an adviser.

Undergraduate students interested in the social work major are admitted to premajor status. All premajors and majors are assigned to a social work adviser. Students enrolled in the Department of Social Work as premajors, or who have been accepted into the major, must have their courses reviewed by an adviser before registering.

Students must apply for admission to the major by November 1 for spring semester and by April 1 for fall semester. Admission materials are available in the Department of Social Work, Business Building, Room 525. To be considered for admission, students must (1) complete 56 credits with a minimum GPA of 2.0, (2) complete S W 220 and 330 with a GPA of 2.0 or higher in each course, (3) submit a formal application form and an essay discussing professional goals and potential for interpersonal/helping relationships, and (4) submit references.

Requirements for graduation with a social work major include completion of 128 credits or more with an overall GPA of 2.0 or higher and completion of all required social work courses with a 2.0 or higher in each course.

The program is accredited by the Council on Social Work Education to award the social work major at the baccalaureate level.

Major Interest Subject	*Credits*
S W 220—Introduction to Social and Health Services	3
S W 320—Individual in Society	3
S W 330-331—Methods of Social Work I, II	6
S W 390—Introduction to Research	3
S W 450—Social Welfare Policy	3
S W 480-481—Field Experience in Social Work	10
Electives in social work	6
	34

General Requirements	*Credits*
ANTH 101—The Human Experience	3
BIOL 100—Biology: Principles and Applications	3
PSY 101—Introduction to Psychology	3
PSY 441—Abnormal Psychology	3
SOC 101—Principles of Sociology	3
Three credits each in political science and economics	6
	21

Additional required courses: The student must also meet a language proficiency requirement or take courses in cultural diversity.

Minors and Certificate Programs

Dance Minor

Students majoring in another field may minor in dance by completing the following:

	Credits
RPED 110—Beginning Modern Dance	1
RPED 111—Intermediate Modern Dance	1
RPED 119—Jazz Dance	1
RPED 120—Beginning Ballet	1
RPED 253—Methods of Teaching Dance and Rhythms	2
RPED 261—Introduction to Dance Composition	2
RPED 262—Dance Production	3
RPED 264—History of Dance I: Primitive—19th Century	3
RPED 265—History of Dance II: 20th Century	3
RPED 362—Aesthetics and Criticism	3
RPED 364—Dance Pedagogy	2
RPED 365—Art of Performance	2
	24

Human Development and Family Studies Minor

This minor requires a total of 18-24 credits with nine credits in upper-division coursework. HDFS 274 is required. Students can select coursework to support their particular academic and professional goals.

Nutrition Minor

Students majoring in another field may minor in nutrition by completing 18 credits from the following: NUTR 121, 223, 419, 421, 422, 426, 427, 433, 440.

Recreation and Physical Education Minor

Students majoring in another field may minor in recreation and physical education by completing the following:

Minor Interest Subject	*Credits*
RPED 201, 204, 403, 405, 406	12
RPED 301 or 302	2-3
RPED 250 through 259	3
Electives	1-3
	20-23

Gerontology Certificate Program

Please refer to description of program and course requirements in the Interdisciplinary and Special Programs section of this catalog.

Graduate Programs and Degrees

Human Development and Family Studies Major

Degree: master of science

A student applying for graduate standing must meet the following academic requirements:

1) A bachelor's degree from an accredited educational institution, with course work and/or work experience in human development, interpersonal relationships, families or family economics.

2) An overall undergraduate GPA of 2.75 or higher.

3) A score of 400 or above on the verbal part of the GRE.

Within the master of science degree, students may specialize in an area of academic interest through the selection of electives and a thesis or professional paper topic. The candidate may select a thesis plan or professional paper plan. In either plan, 12 hours of credit in courses numbered 700 or above are required. The thesis results from research supervised by a member of the human development and family studies department who has expertise in the candidate's research area. The professional paper will include an analysis of a specific professional problem related to the candidate's area of concentration. A total of 32 credits is required as described below.

	Credits
HDFS 631—Advanced Studies in Human Development and Family	3
HDFS 636—Family Interaction	3
HDFS 730—Family Theories	3
HDFS 740—Family Economics and Management	3
HDFS 771—Research Methods	3
Statistics	3
HDFS 796—Professional Paper	3
OR	
HDFS 797—Thesis	6
Electives	8-11
	32

Nutrition Major

Degree: master of science

The master of science with a major in nutrition requires 24 credits of coursework plus six credits of thesis, distributed as follows:

	Credits
NUTR 725—Food Intake and Nutrition	3
NUTR 726—Seminar (three semesters)	3
Statistics	3
Research methods	3
Support elective courses at 600/700 level	12

Entrance requirements to this program consist of a bachelor's degree from an accredited educational institution, an undergraduate GPA of 3.0 or above, and a score of 1000 on the combined verbal and quantitative portions of the GRE.

Once admitted to the program, the student will be assigned a graduate adviser who, within the first year, will assist the student to: 1) form an appropriate graduate committee which will be comprised of the student's graduate adviser, another graduate faculty member in nutrition and a third graduate faculty member from the university at large; 2) develop the course of study and submit it for approval to the student's graduate committee. The course of study must include three credits of NUTR 725—Nutrition and Health, NUTR 726—Seminar, statistics, and research methods; six credits of thesis; and 12 credits of courses in nutrition and a selected support area as biochemistry, biology, physiology, recreation and physical education, etc. (of these 12 credits, six must be at the

700 level). 3) begin to formalize the thesis project and submit preliminary draft of thesis proposal to the student's graduate committee for input and approval.

The second year of graduate study should include: 1) completion of thesis research and the thesis itself; 2) completion of all coursework; and 3) completion of comprehensive and final examinations.

An 3.0 overall GPA is required to maintain progress in the master of science program. Students will also be required to take at least one credit, or in the case of graduate assistants, sufficient credits to constitute full-time enrollment, in order to maintain degree progress.

Graduate Assistantships

A limited number of graduate assistantships are provided in the department. An application for graduate assistantships can be obtainted from the Department of Nutrition. In order to maintain an assistantship, students will be expected to maintain a 3.0 GPA, maintain satisfactory degree progress and perform the assistantship tasks in a satisfactory manner.

Physical Education Major

Degree: master of science

The Recreation, Physical Education and Dance Department offers a graduate program leading to the master of science degree.

	Credits
RPED 702—Critical Issues in Physical Education	2
RPED 703—Curriculum Construction in Physical Education	2
RPED 704—Physical Education Seminar	2
RPED 705—Physiological Bases of Conditioning Programs	2
RPED 792—Readings in Physical Education and Recreation	2
RPED 793—Independent Projects in Physical Education	2

(Prerequisite: 15 graduate credits in RPED)

Total credits 30 (thesis 6, coursework 24); 32 (professional paper 3, coursework 29).

Further details may be obtained from the office of the dean of the Graduate School or from the chairman of the department.

Social Work Major

Degree: master of social work

The master of social work prepares students for advanced social work practice, including the eventual independent and clinical practice of social work. This degree requires 60 credits of graduate coursework, which includes 18 credits of field work. A particular commitment to quality social services in public settings is evident throughout the curriculum. A wide variety of field experiences is available, including options in urban and rural settings.

Students in the graduate program must complete a core curriculum in social work and then may specialize in one of three areas of concentratoin: the elderly, vulnerable families, or seriously ill (mentally or physically) or isolated populations. Graduates of this program will be eligible to qualify by testing and experience for licenses as social workers, clinical social workers, and independent social workers. Students should contact the department for information about the master of social work program.

Donald W. Reynolds School of Journalism

Travis Linn, *Dean*

Faculty: Conover, Coulson, Ellis, Frook, Gormly, Highton, Howland, Land, Laxalt, Lerude, Linn, Padellford

Visiting Faculty: Frook, Laxalt, Morris

Journalists play a crucial role as they discover, analyze and report the events and trends that shape our society.

Professionals in the related fields of advertising and public relations provide equally important services as we rely upon them to inform us of the nature of products, companies, and public and private agencies that influence our lives.

The practice of these professions demands skill in writing and understanding of government, economy and society.

The objective of the Donald W. Reynolds School of Journalism is to help students acquire the combination of general education and journalistic skill that will enable them to pursue inquiry intelligently, treat issues fairly and communicate facts clearly.

Bachelor of Arts Degree

Students seeking the bachelor of arts degree from the Reynolds School of Journalism must complete at least 128 credits, 40 of which must be numbered 300 or higher.

The university requires the completion of the core curriculum.

Of the 128 credits required for graduation, at least 90 credits must be in courses other than journalism and journalism-related skills courses, and at least 65 must be in the liberal arts. A minimum of 30 credits must be in journalism, including courses in the journalism core and one career option, as described below.

Of journalism courses, only JOUR 101, 201 and 203 may be taken during the freshman and sophomore years. Students are urged to enroll in liberal arts courses and to satisfy requirements of the core curriculum and the journalism school's requirement for proficiency in a foreign language during the first two years of university-level study.

Journalism majors are required to pursue a second major field of study, a minor, or an approved interdisciplinary cluster of courses in an outside field.

To gain approval to major in journalism, a student must have junior standing and a GPA of 2.5 or higher. Freshmen and sophomores are classified as prejournalism majors.

Students majoring in journalism may count toward graduation no more than 15 credits taken for *S/U*. With the exception of journalism courses offered for *S/U* only, all courses satisfying specific requirements for the major must be taken for a letter grade.

Liberal Arts Requirements

Professional journalists must have a working knowledge of the nation's cultural, literary and artistic heritage, the nature of other societies, the organization of local, state, national and international government, the effects of economic transactions and the scientific and mathematical perceptions of the ecology.

Therefore, the curriculum for journalism majors includes a strong liberal arts education. The following requirements include the university's core curriculum requirements *and* the journalism school's additional liberal arts requirements.

	Credits
Writing: ENGL 101, 102	3-6
Mathematics: MATH 105, 115, 211, 213 or 215	3
Economics: ECON 101, 102	6
Basic Science: BIOL 100; CHEM 101, 102, 105, 201, 202; PHYS 100, 151-153, 152-154, 201-204, 202-205 or 203-206	3
Behavioral Science: PSY 101, 103; SOC 101; or ANTH 101	3
Environmental Science: GEOG 103; GEOL 101; B CH 150; or ANTH 102	3
Political Science: P SC 101, 211, 231, 304, 305, 308 or 309	3
Fine Arts: ART 100, 116, 117; MUS 120, 121, 122, 201, 202, 203; or THTR 100	3
The Western Tradition: W T 201, 202, 203	9
Literature: ENGL 235, 236, 241, 244, 253, 261, 291, 292, 293, 337 or 366	6
Philosophy PHIL 110, 112, 125, 130, 200, 203, 207, 211, 212 or 213	3
Cultural Studies: ANTH 200, 201, 205, 464, 467, 468, 488; FR 221, GEOG 476, 487, 488, 489; GER 221; ITAL 221; JAPN 221; SPAN 221 or 222	3
Integrative Capstone Courses: Select two courses from the list of capstone courses that will be identified as part of the university's core curriculum	6
Additional Liberal Arts: Select additional courses from those listed above or MATH 101 or ENGL 101 or any foreign language course numbered 101, 102, 203, 204, 205 or 209	12

Outside Field of Study

Journalism majors are required to complete one of the following: a dual *major* or a *minor* in another department, or an approved *interdisciplinary cluster* of courses. A cluster comprises at least 18 credits of coursework, nine credits of which must be numbered 300 or above, forming a coherent plan of study of an interdisciplinary topic. The cluster must be approved by the student's adviser.

Language Requirement

The understanding of other cultures is important to the professional journalist. Journalism majors must demonstrate proficiency in one foreign language by successfully completing a fourth-semester course in that language or by passing an examination at that level.

GPA Requirement

As a professional school, the Reynolds School of Journalism expects students to demonstrate a solid commitment to performance and excellence.

To major in journalism, students must maintain a GPA of 2.5 or higher in all courses and specifically within the journalism curriculum. A student whose grade in a journalism course is lower than "C," and whose GPA within journalism courses is below 2.5, must repeat the course.

A student who does not satisfy the GPA requirements for two successive semesters may not register in additional journalism courses without advance written approval of the dean.

Journalism Courses

All journalism majors must complete the courses in the journalism core, which provides basic knowledge and skills for students seeking careers in print and broadcast journalism, advertising or public relations, plus the courses in one career option. Majors may also take journalism elective courses of their choice.

Completion of the core and one career option totals 30 credits.

The Journalism Core

The journalism core consists of the following courses:

Freshman Year	*Credits*
JOUR 101—Introduction to Journalism	3

Sophomore Year	*Credits*
JOUR 201—Basic Reporting	3
JOUR 203—Advanced Reporting	3

Junior and Senior Years	*Credits*
JOUR 303—Media Graphics	3
JOUR 401—Media Law	3

Career Options

Career option courses may be taken only by students who have junior standing, satisfy the GPA requirements and have successfully completed JOUR 101, 201 and 203. Career option courses should be taken in the sequence shown.

Print Journalism	*Credits*
JOUR 311—Assignment Reporting	3
JOUR 313—Photojournalism	3
JOUR 411—News Editing	3
JOUR 413—History and Ethics of Journalism	3
JOUR 499—Professional Internship	3

Broadcast Journalism	*Credits*
JOUR 321—Writing News for Broadcast	3
JOUR 323—Broadcast News Writing and Production	3
JOUR 421—Radio News Reporting	3
JOUR 423—Television News Reporting	3
JOUR 499—Professional Internship	3

Advertising	*Credits*
JOUR 331—Introduction to Advertising	2
JOUR 333—Advertising Media	2
JOUR 334—Advertising Copy	2
JOUR 431—Advertising Photography and Graphics	3
JOUR 433—Advertising Case Studies	3
JOUR 499—Professional Internship	3

Public Relations	*Credits*
JOUR 313—Photojournalism	3
JOUR 341—Public Relations Principles and Practice	2
JOUR 343—Public Relations Case Studies	2
JOUR 411—News Editing	3
JOUR 441—Public Relations Problems	2
JOUR 499—Professional Internship	3

Minor in Journalism

Students majoring in another field may minor in journalism by completing the following courses:

	Credits
JOUR 101—Introduction to Journalism	3
JOUR 201—Basic Reporting	3
JOUR 203—Advanced Reporting	3
JOUR 303—Media Graphics	3
JOUR 401—Media Law	3
plus at least three credits from one or more of the career options shown above	4-6

Journalism Teaching

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

Accreditation

The Reynolds School of Journalism is accredited by the Accrediting Council on Education in Journalism and Mass Communications. Accreditation was first granted in 1970.

Master of Arts Degree

David Coulson, *Director of Graduate Studies*

The master's program in journalism prepares students for careers in the media or teaching. The student acquires research skills and develops journalistic competence. In a competitive field, such a program of study makes a valuable difference.

The program is designed to meet the needs of students of diverse academic and professional backgrounds and interests. The Reynolds School of Journalism encourages applications from those who hold degrees in other disciplines as well as those with journalism backgrounds who wish to continue their education.

Admission Requirements

Students are admitted to the graduate program each fall semester on a competitive basis, with notification of acceptance by May 1.

A completed application and supporting credentials must be submitted directly to the university office of Admissions and Records by April 15. Supporting credentials include:

1. Official transcripts from each college and university attended.
2. Graduate Record Examination scores (from a test taken within the past five years).
3. Application fee (nonrefundable).

In addition, each applicant must provide the following information directly to the Reynolds School of Journalism for consideration with the application:

1. Letter of intent explaining study goals.
2. Three letters of recommendation.
3. Other evidence of potential for success in graduate study.

Successful applicants tend to have an undergraduate GPA of at least 3.0 (on a 4.0 scale) and a composite GRE score of at least 1,500. Primary consideration is given to the verbal and analytical sections of the GRE. One of the letters of recommen-

dation should be from an appropriate professor at the student's undergraduate institution, appraising the applicant's capabilities for graduate work. Additional letters of recommendation from employers are acceptable. The applicant's statement of experience and interest in journalism should specify what they expect to accomplish from pursuing graduate study in journalism.

Students entering the master's program should have demonstrated writing and editing skills and have satisfactorily completed courses in media law and the history and ethics of journalism. Depending upon a student's educational and professional background, the student may be required to complete courses in these areas. If the student's GPA in these courses is below 2.5, the student must retake courses with grades of "C" or below.

International Students

The Reynolds School of Journalism welcomes applications from international students, believing that mutual benefit is derived when students from other countries are in the program. The school also recognizes that journalism, more than many other fields, requires language skill. International students must be able to follow rapid speech both in the field and the classroom, as well as to deal with abstract ideas communicated in English. Completion of the master's degree in journalism attests to the student's proficiency in English.

The Test of English as a Foreign Language (TOEFL) is required of international students whose native language is not English. A score of 600 or higher on the TOEFL is required for admission. The GRE is not required of students taking the TOEFL.

Plan of Study

Prior to a student's registration for the first semester of study, a member of the journalism graduate faculty is assigned as the student's adviser. (The student may later select a different adviser.) The student and the adviser work out a plan of study that shows the direction of the student's course work and an anticipated date of completion. This plan of study becomes a part of the student's file and constitutes the terms and conditions that the student must meet for completing the degree requirements. Subsequent changes in the plan of study must be approved by the director of graduate studies.

Writing Proficiency Examination

A writing proficiency examination is administered at the beginning of the fall semester. Students take the examination their first fall semester of graduate standing. Students who score less than 80 percent take the test again during the fall semester. Those who score less than 80 percent a second time are required to pass a prescribed undergraduate writing course with a grade of B or higher or to work with the Writing Center to correct deficiencies.

Graduate Assistantships

Graduate assistantships are available in the Reynolds School of Journalism each year. Graduate assistants teach and assist faculty in their courses and research.

Graduate assistants receive stipends for one academic year. Stipends are accompanied by grants-in-aid which pay most of the tuition.

Students applying for assistantships should file their applications with the Reynolds School of Journalism no later than April 15. Graduate assistantships are awarded only to students who are officially admitted to graduate standing. Assistantships begin in the fall semester.

Degree Requirements

To qualify for the master of arts degree with a major in journalism, students must satisfy the following requirements:

1. Writing proficiency examination.
2. Undergraduate prerequisites, if any.
3. Foreign language requirement.
4. Core curriculum (12 credits).
5. Journalism electives (six credits).
6. Directed study (nine credits).
7. Maintenance of a GPA of 3.0 or higher.
8. Professional research project (four credits).
9. Project development course (two credits).
10. Oral defense of professional research project.

Of the 33 graduate credits required, at least 21 must be in courses numbered 700 or higher. Courses numbered lower than 600 are not counted toward the degree. With the exception of JOUR 797—Professional Research Project and JOUR 798—Project Development, no course may be taken for *S/U*.

Directed Study

Students with undergraduate degrees in journalism or mass communication or with extensive professional experience take nine credits in a minor field. Students without such backgrounds take journalism courses instead.

Core Curriculum

The following courses are required for all journalism graduate students:

Required Courses	*Credits*
JOUR 701—Media Research Methods	3
JOUR 703—Media Dynamics in Society	3
JOUR 705—Media Technologies	3
JOUR 707—Analytic Writing	3

Electives

Elective graduate courses in journalism include such topics as media management, advertising and public relations research, mass media history, international journalism, legal restraints on the media, television network programming, literary journalism, technical writing, public affairs reporting and magazine writing and editing.

Maintaining Progress

Students are expected to maintain satisfactory progress toward the degree. A student's graduate record begins with the first course credited to the degree and includes all subsequent courses. Students must maintain a GPA of at least 3.0 within the core curriculum and a GPA of 3.0 or higher in all courses counted toward the degree. Students must complete all requirements within four years.

To maintain standing in the program, a student must enroll for at least one graduate-level credit during each regular semester.

Foreign Language Requirement

Candidates for the master's degree must demonstrate competency in a foreign language in one of the following ways:

1. Complete a fourth-semester undergraduate course in the language with a grade of "C" or higher or pass an examination at that level.
2. Demonstrate that a similar foreign language requirement has been satisfied in obtaining the bachelor's degree.

Professional Research Project

Most decision-oriented positions in journalism require a general understanding of what research is and how it can help solve problems. Increasingly, decisions are based on research, and more news stories are about research. As a result, both applied and theoretical approaches to research have taken on more significance in the decision-making process of journalism and in our understanding of the media and their use.

In light of this, each student must complete a professional research project designed to blend research with practice. Students identify a problem within the field, investigate it in a media setting and apply appropriate research procedures. The project is the capstone of the student's graduate studies.

Students submit a written prospectus, outlining the purpose and approach of the research, to the director of graduate studies at least 60 days before their media affiliation. *(Note: The student must complete JOUR 701 before preparing the prospectus.)*

After the director of graduate studies accepts the prospectus, the student selects other members of an advisory committee. The committee consists of three or more members, one from outside the Reynolds School of Journalism. The director of graduate studies designates the chairman of the committee who must be a graduate faculty member.

A consultative meeting is held between the student and the advisory committee to discuss revisions of and refinements in the prospectus. After the meeting, the committee votes to accept or reject the prospectus. Final approval of the prospectus is required before the student can begin working with a media firm. The student whose prospectus is approved works closely with the committee in the completion of the project. This includes submitting periodic progress reports to the committee adviser while working with the media.

Oral Defense

Upon completion of the professional research project, the master's candidate makes an oral defense of the project. It is evaluated as a measure of the student's conceptual, research and writing abilities.

The student schedules the defense, with the consent of the committee, for a date not later than two weeks before the end of spring or fall semester. All members of the committee must have adequate time to read the project document before the oral examination. The student is responsible for duplicating and distributing copies of the document to the advisory committee and making arrangements for scheduling the oral defense. Students also should make certain their academic progress sheets are filed with the director of graduate studies in journalism two weeks before the date of the oral defense.

A majority vote of the committee is sufficient to approve the project. The signatures of all the committee members must appear on the signature sheet.

The committee adviser decides whether final corrections (after the oral defense) have been made properly and checks the style and form of the final typed version. Procedures for the professional research project are the same as those for the thesis in the Graduate School section of this catalog.

Three copies of the professional research project document should be delivered to the Reynolds School of Journalism.

School of Medicine

Robert M. Daugherty, Jr., M.D., Ph.D., *Dean*

The University of Nevada School of Medicine is one of only 20 community based medical schools in the U.S. This means that the school uses already existent clinical facilities in its clinical training programs; it owns no teaching hospital, nor does it aspire to do so. The school is designed to train capable and caring physicians who will practice primary care medicine in a community rather than an academic setting.

In a state like Nevada, with a small and scattered population, limited resources and a need for primary care physicians, the university based and community integrated model has been determined to be both philosophically and pragmatically the most practical.

Important allied health programs overseen by the school include the medical technology/clinical laboratory sciences program and the Department of Speech Pathology and Audiology.

Baccalaureate Degree Programs

The School of Medicine offers a bachelor of science degree with majors in biochemistry, clinical laboratory science and speech pathology or audiology. The clinical training and practicum associated with these fields are fully integrated with the school's curricular structure, and students may earn their baccalaureate degrees by completing:

1. A total of 128 credits in required and elective courses. Of the 128 credits, a maximum of eight credits of combined courses in recreation and physical education and military science (below 300-level) may apply.
2. A minimum of 40 credits in courses numbered 300 or above.
3. The university core curriculum requirements.
4. The general university requirements regarding minimum GPA and resident credit.

The number of credits taken on an S/U basis may not exceed 30. These courses may not be taken within the required areas.

In addition, a bachelor of science degree with a major in medical sciences is offered for medical students who enter after three years of university level study. The major may be completed during the two-year basic sciences curriculum provided all university and school requirements are satisfied during that time.

Biochemistry

An undergraduate major is offered in biochemistry through the School of Medicine. This program provides the student with a well-rounded general education that emphasizes the biological and chemical sciences and strong specific training in the major field through a sequence of standard biochemistry courses during the junior and senior years. A minor in biochemistry is also available.

The bachelor of science in biochemistry prepares students for graduate study, civil service positions, industry and professional fields related to life, health, agriculture, and the medical sciences.

The curriculum for majors is shown below. Fulfillment of this program satisfies university core curriculum requirements. Students interested in the program should contact the Biochemistry Department for advisement.

Freshman Year

	Credits
BIOL 101, 102, 201 or 202	7
CHEM 201, 202 recommended; CHEM 101, 102 accepted	8
ENGL 101, 102	6
MATH 215	4
Social science core course	3
Fine arts core course elective	1
	32

Sophomore Year

	Credits
AGEC 270 or equivalent	3
CHEM 343, 344	6
CHEM 347, 348	4
MATH 216	4
PHYS 151, 152	6
PHYS 153, 154	2
SPCM 113	3
W T 201—Foundations of Western Tradition	3
Elective	1
	32

Junior Year

	Credits
B CH 400, 417	8
B CH 403, 404	4
CHEM 330	4
CHEM 353, 354 recommended; CHEM 357, 451 accepted	6
MINE 213 or equivalent	2
Biological science elective[1]	4
W T 202—The Modern World	3
Elective	1
	32

Senior Year

	Credits
B CH 407, 408	6
B CH 413	4
B CH 420, 421	2
Biological science elective[1]	4
W T 203—The American Experience and Constitutional Change	3
Elective (must include six credits for core curriculum capstone requirement)	13
	32

Minor in Biochemistry

Students majoring in another field may minor in biochemistry by completing the following:

	Credits
B CH 400, 403, 404	8
B CH 413 or 417	4
An additional six credits in any course in the physical sciences (including additional biochemistry)	6
	18

Clinical Laboratory Science

The clinical laboratory science (CLS) curriculum is designed to provide the student with the knowledge and skills required

[1]Must be at 300 level or higher.

to perform diagnostic procedures in the clinical laboratory. Emphasis is placed on the role of the clinical laboratory scientist in modern health care delivery.

Students who wish to pursue a career in clinical laboratory science are classified premajors upon admission to the university.

Students may select a two-year course of study, the completion of which allows them to enter the work force at the level of a medical laboratory technician (MLT), or they may elect to complete a bachelor of science with a major in CLS which provides the potential for greater upward mobility and responsibility. Students may apply to the MLT program after the first semester's requirements are completed. Admission criteria include a GPA of 2.50 or higher in required courses with a C grade or better in each of these courses. Completion of the two-year MLT required courses with an overall GPA of 2.00 or higher and a C grade or better in each required course culminates in a certificate of completion at the university. A similar two-year MLT program leading to an associate degree is offered through Clark County Community College (CCCC). Further information concerning the CCCC MLT program may be obtained by contacting the clinical laboratory science program at the university or the CCCC Science and Health Division.

Freshman Year
First Semester

	Credits
BIOL 101—General Biology	3
CHEM 101—General Chemistry	4
CLS 111—Medical Terminology	1
ENGL 101—Composition I	3
MATH 115—Algebra and Trigonometry	5
	16

Second Semester

	Credits
BIOL 102—General Biology Laboratory	1
Social science core course	3
CHEM 102—General Chemistry	4
ENGL 102—Composition II	3
CLS 161—Medical Laboratory Principles I	1
CLS 162—Medical Laboratory Principles II	1
	13

Summer

	Credits
CLS 281—Parasitology/Mycology/Virology	1
CLS 282—Applied Parasitology/Mycology	1
CLS 291—Hematology	2
CLS 292—Applied Hematology	2
	6

Sophomore Year
First Semester

	Credits
BIOL 262—Human Anatomy and Physiology I	3
CHEM 142—Organic Chemistry	3
CHEM 143—Introductory Organic Chemistry Laboratory	1
CLS 216—Instrumentation Laboratory	1
CLS 221—Principles of Disease I	1
CLS 271—Clinical Microbiology	2
CLS 272—Applied Clinical Microbiology	3
	14

Second Semester

	Credits
BIOL 263—Human Anatomy and Physiology II	3
CLS 222—Principles of Disease II	1
CLS 241—Clinical Chemistry	3
CLS 242—Applied Clinical Chemistry	3
CLS 251—Immunology/Immunohematology	2
CLS 252—Applied Immunology/Immunohematology	2
	14

Summer

	Credits
CLS 296—Clinical Practicum	3

Students who wish to pursue a bachelor's degree with a major in CLS at the University of Nevada, Reno must earn a GPA of 2.50 or higher with a grade of C or better in each required course while completing 30 credits or more in major courses (CLS) during their first two years in the MLT major. Once admitted to the major, students must maintain a GPA of 2.50 or higher and must earn a grade of C or better in each major course to satisfy minimum graduation requirements. Applications for both the MLT and MT majors are reviewed by the CLS faculty and students are accepted on the basis of academic achievement and space available in the programs. Students who do not meet the above criteria for acceptance may appeal to the Medical Technology Advisory Council for provisional consideration. Transfer students are considered by means of interview and transcript evaluation to determine equivalence of prerequisite course content. The CCCC MLT program fully articulates with the bachelor CLS program at the University of Nevada, Reno and students who successfully complete the MLT curriculum at either institution may enter the bachelor's program at the university.

Junior Year
First Semester

	Credits
CHEM 330—Analytical Chemistry	4
PHYS 152—General Physics	3
CLS 318—Principles of Laboratory Supervision/Management	2
CLS 323—Advanced Immunohematology Laboratory	1
W T 201—Foundations of Western Tradition	3
Fine arts core course	3
	16

Second Semester

	Credits
B CH 400—Introductory Biochemistry	4
CLS 301—Biometry	1
CLS 335—Advanced Clinical Microbiology	2
CLS 336—Advanced Clinical Microbiology Laboratory	2
W T 202—The Modern World	3
W T 203—The American Experience and Constitutional Change	3
	15

Senior Year
First Semester

	Credits
CIS 250—Introduction to Business Information Systems	3
CLS 313—Advanced Hematology	2
CLS 314—Advanced Hematology Laboratory	1
CLS 425—Instrumentation	1
Elective	3
Core curriculum capstone course	3
	13

Second Semester

	Credits
CLS 426—Clinical Chemistry	3
CLS 427—Clinical Chemistry Lab	1
CLS 431—Immunology	3
CLS 432—Serology Lab	1
CLS 441—Pathophysiology	2
Core curriculum capstone course	3
	13

Summer

	Credits
CLS 451—Clinical Practicum	15

During the course of study, all students in the program (certificate and bachelor's degree) are required to enroll in a clinical practicum and are assigned to affiliated hospital laboratories for practical experience. Students must successfully

complete these rotations which include satisfactory performance in all clinical laboratory disciplines. A passing score on a comprehensive examination given at the completion of the clinical practicum is required for all students wishing to graduate with a bachelor's degree.

Students who satisfactorily complete either program are eligible to take the appropriate generalist certification examination given by various certifying agencies. For further information concerning the CLS curriculum, contact the clinical laboratory science program, Room 300, Mackay Science Building.

Speech Pathology and Audiology

The baccalaureate degree program (B.S.) with a major in speech pathology (including an option in audiology) is a *preprofessional* program. A master's degree is considered essential for *professional* competence. A minimum of 38 credits in speech pathology and audiology and 125 clock hours of supervised practicum with individuals who present a variety of communicative disorders is required. In addition, 20 credits in related areas such as anthropology, mathematics, nursing, biology, physical sciences, psychology, special education, linguistics, sociology, or semantics must be completed, and each student must satisfy the university core curriculum requirements, and demonstrate adequate ability to work with children having articulation and language disorders.

Required Courses in SPA	*Credits*
SPA 259—Phonetics	3
SPA 310—Speech and Language Development	3
SPA 356—Survey of Speech Pathology	3
SPA 357—Communication Science	3
SPA 359—Assessment of Communication Disorders	3
SPA 360—Methods of Clinical Management	3
SPA 361—Articulation Disorders	3
SPA 362—Introduction to Audiology	3
SPA 363—Practicum in Speech Pathology	4-8
OR	
SPA 459—Seminar in Clinical Procedures	2
SPA 463—Internship in Speech Pathology and Audiology	6-8
SPA 466—Aural Rehabilitation	3
SPA 467—Language Disorders in Children	3

All majors are required to have their programs approved by a faculty adviser within the Speech Pathology and Audiology Department.

For additional information on the baccalaureate program in speech pathology, contact the department chairman, Room 108, Mackay Science Building.

Graduate Programs

Master of Science Degree Programs

Biochemistry

The Biochemistry Department offers graduate degree programs through the College of Agriculture and the School of Medicine.

General Requirements for Admission

Applicants with a bachelor's degree in the physical or natural sciences having at least three credits each in biology and organic chemistry and meeting the requirements of the Graduate School may be accepted in biochemistry. Before completing the requirements for the master's degree, students must have completed the following courses or their equivalents: one year of physics; one year of biology, botany, zoology or physiology; and CHEM 343, 344, 347, 348, 330, 353, 354.

Course Work

A minimum of 30 credits, including six credits of thesis, is required. In addition, the candidate must submit a written thesis and pass a given number of written cumulative exams and an oral defense of thesis.

Required Courses	*Credits*
B CH 613, 617—Biochemistry of Macromolecules, Metabolic Regulation	8
B CH 790—Seminar	2
B CH 797—Thesis	6
Required Selectives	
B CH 701, 702, 711, 712—Experimental Biochemistry, Biochemical Techniques[1]	5
B CH 718, 722, 752—Plant Metabolism, Metabolism, Mitochondrial Structure and Function[1]	3
B CH 705, 731, 740, 751—Molecular Genetics, Physical Biochemistry, Enzymology, Nucleic Acids[1]	3
Additional electives	3
	30

All students must have their curricular programs approved by a supervisory committee. For additional information, contact the Biochemistry Department, Room 145, Howard Building, School of Medicine.

Cell and Molecular Biology

The cell and molecular biology program is an interdisciplinary program with participating faculty from the School of Medicine and Colleges of Agriculture and Arts and Science. The program consists of a variety of disciplines which involve research at a cell and/or molecular biology level. Programs of study are offered that lead to the master of science, doctor of philosophy, or a combined M.D./Ph.D. degree.

Specific information and course requirements are located in the Interdisiplinary and Special Programs section of the catalog.

Speech Pathology and Audiology

General Requirements for Admission

The master of science (M.S.) degree program is designed to provide a professional level of competency in speech pathology. Each applicant must meet the general admission requirements for graduate standing as described in the Graduate School section. Each student is expected to complete a concentration of course work in speech pathology and audiology, subject to approval of the department, prior to admission to graduate standing. This program is accredited by the Educational Standards Board (ESB) of ASHA.

Course Work

A minimum of 40 credits must be completed at the graduate level. The thesis program, Option A, requires a minimum of 34 course credits plus six credits of thesis, and a comprehensive oral examination covering the thesis and background information.

The nonthesis program, Option B, requires a minimum of 40 course credits. A comprehensive oral and written examination covering communication science, the normal speech and hearing processes, pathologies, and clinical procedures is given to each student early in the last semester of course work. A student completing the program with a master's degree must plan to acquire the background and experience necessary to pass the American Speech Language and Hearing Association national

[1]Select any combination for a total of required credits.

examination to be recognized and certified as a competent speech pathologist or audiologist. Graduate students must complete a minimum of 250 clock hours of supervised clinical experience at the graduate level and a total of 400 supervised clock hours for both graduate and undergraduate programs.

An approved program in speech pathology and audiology (which meets national certification requirements) is developed by the graduate adviser, supervising committee, and the student, from the following courses:

	Credits
SPA 659—Seminar in Clinical Procedures	2
SPA 660—Aspects of Speech Pathology and Audiology	1
SPA 661—Advanced Speech Pathology	2
SPA 663—Internship in Speech Pathology and Audiology	6-8
SPA 664—Practicum in Audiological Testing	2
SPA 665—Medical Audiology	3
SPA 666—Rehabilitation for Hearing Handicapped	3
SPA 667—Language Disorders in Children	3
SPA 720—Introduction to Graduate Study	3
SPA 721—Craniofacial Disorders	3
SPA 751—Dysphasia	3
SPA 752—Stuttering	3
SPA 753—Communication Disorders in the Cerebral Palsied	3
SPA 754—Seminar in Physical Anomalies	2
SPA 757—Experimental Phonetics	3
SPA 759—Seminar in Clinical Procedures	2
SPA 762—Disorders of Voice	3
SPA 765—Advanced Audiology	3
SPA 767—Advanced Practicum	2
SPA 768—Seminar in Audiology	3
SPA 769—Seminar in Audiological Measurements	2
SPA 794—Workshops and Institutes	1-3
SPA 780—Independent Study	1-3
SPA 797—Thesis	1-6

All students must have their programs approved by a departmental graduate adviser and supervisory committee.

For additional information on the graduate program in speech pathology and audiology, consult the department chairman, Room 108, Mackay Science Building.

Early Childhood Special Education Endorsement—students interested in working with young children with special needs may be interested in completing the interdisciplinary courses which lead to a Nevada teaching endorsement in early childhood special education. Additional information and specific courses are provided in the interdisciplinary section of this catalog.

Doctor of Philosophy Degree Programs

Biochemistry

The Biochemistry Department offers the Ph.D. degree either in the College of Agriculture or the School of Medicine.

General Requirements for Admission

All applicants for admission as Ph.D. students must satisfy the general requirements of the Graduate School and must complete courses satisfying the prerequisites in chemistry, biology, and physics before they can be advanced to candidacy.

Course Work

A minimum of 72 credits, including 24 credits of dissertation work, is required. In addition, students must pass a specified number of cumulative exams and an oral comprehensive exam in order to be advanced to candidacy.

Required Courses	Credits
B CH 613, 617—Biochemistry of Macromolecules, Metabolic Regulation	8
B CH 790—Seminar	3
B CH 799—Dissertation	24
Required Selectives	
B CH 701, 702, 711,712[1]—Experimental Biochemistry, Biochemical Techniques[1]	5
B CH 718, 722, 752[1]—Plant Metabolism, Metabolism, Mitochondrial Structures and Function[1]	6
B CH 705, 731, 740, 751[1]—Molecular Genetics, Physical Biochemistry, Enzymology, Nucleic Acids[1]	6
20 credits of additional electives to total 72 credits	

All students must have their curricular programs approved by a supervisory committee. For additional information, contact the Biochemistry Department, Room 145, Howard Building, School of Medicine.

Pharmacology

A master of science degree and a doctor of philosophy degree are offered with a major in pharmacology.

General Requirements for Admission

Candidates for admission to the graduate program in pharmacology must meet the criteria for admission to the Graduate School as well as certain additional program criteria. These include two semesters of biology, two semesters of physics, one semester of calculus, five semesters of chemistry including two semesters of organic chemistry and one semester of physical chemistry. Students lacking one or more of the above courses, but who otherwise meet the requirements may be admitted with the understanding that deficiencies will be rectified at an early date.

Course Work

Twenty-four credits of dissertation work plus a core curriculum of required courses and the opportunity for a variety of elective courses form the essential elements of the program. Considerable flexibility is built into the program to accommodate the needs of the students.

Additional Program Requirements

Students new in the program participate in a research rotation experience during their first year in the program. As their training progresses, students take part in a teaching practicum and further must pass a comprehensive examination in which the student proposes a research project in the form of a written grant proposal. Following acceptance of the proposal, the proposal must be defended orally before the examining committee.

All candidates present a public seminar on their dissertations research and must pass an oral defense of the dissertation.

For additional information, contact the Department of Pharmacology, Howard Building, School of Medicine.

Combined M.D./Ph.D.

A combined M.D./Ph.D. degree program is offered with majors in anatomy, biochemistry, cellular and molecular biology, pharmacology, and physiology.

General Requirements for Admission

Candidates may be accepted to the M.D./Ph.D. program only after being accepted to the School of Medicine as a regular M.D. student and if they meet the criteria for admission to the

[1]Select any combination for a total of required credits.

Graduate School. Application to the M.D./Ph.D. program is made via the normal process for admission to the School of Medicine. An additional application must be submitted to the M.D./Ph.D. program committee and the Graduate School.

Additional information about the M.D./Ph.D. program can be obtained from the Department of Pharmacology, Howard Building, School of Medicine.

Professional Degree Programs

Four-year Medical School Program

General Information

The School of Medicine was established in 1969 on the Reno campus as a two-year basic sciences program and was authorized to convert to a four-year, M.D. degree-granting school in 1977 by the Nevada State Legislature. In 1980, the school graduated the first class of physicians trained completely in Nevada.

The school emphasizes the development of primary care physicians who will provide comprehensive and longitudinal health care, meeting the needs of the individual, the family and the community. The school is dedicated to selecting and training individuals who will provide health care with both competence and compassion.

Classes, laboratories and clinical activities take place in a combination of on-campus buildings and community health facilities in northern, southern and rural Nevada. Affiliation agreements with hospitals located throughout Nevada provide students with access to clinical facilities totaling nearly 2,000 beds.

The School of Medicine is fully accredited by the Liaison Committee on Medical Education.

The primary goal of the school is to educate sensitive, caring, responsible physicians capable of delivering high-quality health care. Students are taught to be sensitive to their own needs as individuals and as physicians, to the needs of their families and friends and to the needs of their patients and their patients' families. The curriculum emphasizes interviewing and interpersonal skills that will heighten this sensitivity.

It is expected that Nevada's new physicians will feel a responsibility not only to treat the ill but also to become leaders in the efforts to promote and maintain health in the community in which they practice.

The four-year curriculum at Nevada is divided into two components: the basic sciences and the clinical sciences.

The Basic Science Years

During the first two years, students are provided with opportunities to learn the facts and concepts essential to the practice of medicine from seven basic sciences — biochemistry, behavioral sciences, anatomy, physiology, microbiology, pathology and pharmacology; the elementary skills necessary for entering the clinical years; and methods of integrating basic and clinical sciences.

This first goal is accomplished by providing basic science courses, two or three at a time, as depicted in the illustration.

A second goal, that of learning clinical skills, is accomplished in two ways. Four courses are offered to introduce students to the clinical setting. Students interact with patients within the first three weeks in medical school and continue such experiences throughout the first two years.

A third goal, that of integration, is an underlying feature throughout the curriculum. In addition to the integration which occurs during normal course work and examinations, a specific course entitled "Biomedical Problem Solving" is taught on a four-week cycle throughout years one and two. This course presents students with a number of common medical problems around which they learn to apply basic science content information and concepts. The biomedical problem-solving course is interdepartmental in nature and is taught by faculty whose content expertise most readily matches the problem for that week.

First Year

	Credits
B CH 601-602 – Human Biochemistry	9
ANAT 601 – Human Anatomy	6
ANAT 602 – Human Anatomy	3
ANAT 603 – Human Anatomy	4
PCHY 601 – Human Behavior I	3
PCHY 660 – Introduction to Clinical Medicine	3
PHSY 601 – Human Physiology	6
PHSY 602 – Human Physiology	5
MED 601 – Biomedical Problem Solving	4
MED 670 – Physical Diagnosis I	2
FCM 601 – Nutrition Applications	1
FCM 663 – Primary Care Preceptorship	4
	50

Second Year

	Credits
MICR 601 – Medical Microbiology	9
PHAR 601 – Medical Pharmacology	9
PATH 601 – General Pathology	4
PATH 602 – Systemic Pathology	6
PATH 603 – Laboratory Medicine	2
PATH 604 – Laboratory Medicine	2
PCHY 602 – Human Behavior II	4
MED 602 – Advanced Biomedical Problem Solving	4
MED 673 – Physical Diagnosis II	2
FCM 676 – Community Health	3
	45

At the end of the second year, students are required to take Part I of the National Board of Medical Examiners examination. Students must earn a passing score to continue the second semester of the third year.

The Clinical Years

The second two years of medical school are spent in Reno, Las Vegas and outlying areas in the clinical setting, i.e., in doctors' offices, the affiliated hospitals and university-operated ambulatory care centers. The school requires the following clinical rotations: family and community medicine, eight weeks; internal medicine, 12 weeks; obstetrics and gynecology, eight weeks; pediatrics, eight weeks; psychiatry, eight weeks; and surgery, 12 weeks.

Students are required to take the internal medicine and surgery rotations during the third year and must also select three of the four eight-week rotations during the third year. The remaining eight-week rotation is taken during the fourth year.

These rotations are conducted under close supervision of medical school full-time, part-time and volunteer faculty and residents.

Required Clerkships Third and Fourth Year

	Credits
IMED 451, 651 – Clerkship	12
SURG 451, 651 – Clerkship	12
OBGY 451, 651 – Clerkship	8
PEDI 451, 651 – Clerkship	8

PCHY 451, 651—Clerkship	8
FCM 451, 651—Clerkship	8
	56

Additional Required Clinical Courses

	Credits
FCM 461a	4
Electives	24
	28

In the fourth year, students choose (in addition to the final rotation) a number of elective courses, both in and out of state, to develop depth and breadth in their clinical training. These choices are based on their interests, potential strengths and desire to enhance clinical skills. Students also spend a required four-week rotation with a rural Nevada physician in order to become acquainted with the practice of medicine and the lifestyle in a small community, removed from the influences, facilities and contacts shared in an urban setting.

Also in the fourth year, Part II of the National Boards must be taken.

Requirements for Entrance

Since the medical school utilizes the centralized application service of the Association of American Medical Colleges (AAMC), students must submit their applications through the American Medical College Application Service (AMCAS). AMCAS applications may be obtained from the Health Career Advisement Office, Office of Medical School Admissions or the AAMC, 1776 Massachusetts Avenue, Northwest, Washington, D.C. 20036. On completion, the application must be sent directly to AMCAS. DEADLINE IS NOVEMBER 1.

The Medical College Aptitude Test (MCAT) is required of all applicants. This exam is offered twice yearly, once in the spring and once in the fall. Registration packets for the MCAT may be obtained from the Testing Services Office or from the Medical School Admissions Office. The MCAT must be taken within three years of the date of anticipated matriculation and no later than the fall prior to the year of anticipated entrance. In addition to the MCAT, a minimum of three years of college work (90 semester hours) is required. The Admissions Selection Committee strongly recommends completion of a baccalaureate degree.

Requirements for application include:

	Semester Credits
Chemistry (including organic)	16
Biology	8
Physics	8
Behavioral sciences (Three credits of the behavioral science requirement must be upper-division)	6

Students should utilize courses that deal with the psychological stages of the life cycle in fulfillment of the behavioral science requirement (i.e., human growth and development, adolescence, aging, human sexuality, abnormal psychology, family dynamics, or medically oriented sociology). Supplementary courses strongly recommended as useful to the study or practice of medicine *but not required* for admission, include history, literature, philosophy, ethics, and computer science.

A demonstrated competency in English composition and expression is required. Generally, students are expected to satisfy the English composition requirements of their undergraduate institution.

Accepted students are responsible for completing all prerequisite course work prior to matriculation. Testing out of a class (CLEP or A.P.) and/or receiving pass/fail or audit in lieu of a letter grade is not acceptable for required courses.

Application during the summer is strongly encouraged.

Selection Factors

Candidates are evaluated on the basis of academic performance, performance on the MCAT, the nature, breadth and depth of scholarly, extracurricular and health care related activities during college years, excellence and balance of the natural sciences, social sciences, and humanities; academic letters of evaluation, and the personal interview if requested by the Admissions Selection Committee. A high priority is given to legal residents of Nevada. A small number of out-of-state applicants are considered each year who have a strong residential tie to Nevada, or who are residents of Alaska, Idaho, Montana or Wyoming, which are Western, rural states without medical schools. Individuals who do not meet these residential requirements are discouraged from applying to the University of Nevada, Reno. Non-U.S. citizens must have permanent resident visas and be Nevada residents to be considered.

Departments and Faculty

The School of Medicine has seven basic science and seven clinical science teaching departments. Interaction among the sciences provides a well-balanced approach to health care education.

Anatomy

Faculty: Highison, Melarkey, Schneider (Ch.), Stratton, Tibbitts
Clinical Faculty: Fogel

Biochemistry

Faculty: Blomquist, Condit, Dreiling, Harrington, Heisler, Lewis, Miller, Pardini, Reitz (Ch.), Schooley, Seeman, Welch, Winicov, Woodin

Clinical Laboratory Science

Faculty: Holmer, Kiehn, Machara (Prog. Dir.), Wakayama
Clinical Faculty: Donahoo, Ernaga, Fisher, Hammon, Lods, Nikolaisen, Verdi

Family and Community Medicine

Faculty: J. Anderson, Bannister, Basta, C. Brown, S. Daugherty, Ford, Hennelly, Hess (Ch.), L. Hill, Jarvis, G. Johnson, Knight, Mar, McKee, Peck, Rody, Romero, S. St. Jeor, Shumaker, Spogen, D. Wicker, M. Worby
Clinical Faculty: Anderson, Antone-Knoll, Applebaum, Balvin, Bargen, Barkin, Berkley, Bloomfield, Buckley, Campton, Carlson, Chamberlain, Clarke, Coughlin, Dankworth, Davis, Delionback, A. Dingacci, R. Dingacci, Edgcomb, Elam, Evans, Fales, Fenwick, Gummer, Halasey, Hardy, Harn, Harrison, Higgs, Hoskins, Ingle, Inskip, D. Johnson, J. Johnson, M. Johnson, Jonak, J. Jones, M. Jones, Kreisler, Lamberts, Lemieux, Levinger, LeViseur, Lewis, Malone, Mann, McBeath, McLennan, Millman, Mirkil, Moren, O'Shaughnessy, Owensby, Panicari, Parra, Patterson, Pennelle, Peterson, Pierczynski, Plunkett, Rawson, Reimer, Rose, Rosen, Rosenberg, Ross, Rothenberg, Rubin, Shreck, Smith, Sonderegger, Stafford, Stoloff, Straus, Sugino, Thompson, Tietz, Tueller,

Uhalde, Von Tobel, Van Dyken, Watson, Weisner, Weiss, B. Wilkin, J. Wilkin, Winch, Wirges, Zumpft

Internal Medicine

Faculty: Bernstein, Blanchard, Boyer, Brogan, Brown, Bryg, Bumbaca, Busby, Carmichael, Cinque, R. Daugherty, Desai, Eaton, Ellerton, Fisk-Sander, Fornes, Gillespie, Gingold, Goodman, Graze, Greenhouse, Hall, Heaton, Hruska, Kurtz, Lardinois, MacKintosh, Peacock, Peck, Pixley, N. Pokroy, Raskin, S. St. Jeor, Shah, Shane (Ch.), Speck, Speer, Starich, Stewart, Symonds, Toffel, Yoneda, Zanjani, Zell, Zweig

Clinical Faculty: Adams, Allen, Andrews, Anjum, Arger, Baggett, Barg, Barnet, Bentley, Berndt, Bigley, Boman, Bower, Brookhyser, Bross, Brown, Buckley, Cade, Calvanese, Campbell, Cameron, Carmena, Carrera, Caudill, Chamber, Chanderraj, Chemplavil, Christianson, P. Clark, R. Clark, Climer, Coker, Cole, Correa, Culhane, Cunningham, Davis, DeBello, K. Desai, Diedrichsen, Dieringer, Dietrich, DiFore, DiPalo, Drummer, Edwards, Evert, Evins, Falk, Fayad, Fazekas, Feld, Fialkow, Fischer, Fuller, Futamachi, Ganchan, Gansert, Gardner, Gilbreath, Goring, Graves, Grenn, Grisby, Gross, Haga, Haikal, Hamlin, Handke, Hardwick, Heeren, Held, Hill, Hogle, Hope, Humphrey, Hunter, Ismail, Jackson, P. Jacobs, T. Jacobs, Jorna, Joya, Kane, Kantor, Karch, Kehne, Krause, Lagstein, LaMancusa, Landow, Lehrner, Lund, MacDonald, Marston, Mashhood, McMahon, Miller, Moore, More, Morrill, Muntha, Myles, Nemec, M. Newmark, S. Newmark, Nielsen, Noble, Nogueira, Norman, Odaimi, O'Neill, Palitang, Parker, Pathi, Pendegast, Perer, Pinto, Pitterman, Pourzan, Povolny, Prabhu, Prupas, Read (Emeritus), Reagan, Reddy, Roberts, Roth, Sage, Savran, Schiff, Scoville, Seher, Shields, Shoen, Sieren, Simrod, Siragusa, R. Smith, S. Smith, Soong, Spring, Standlee, Swarts, Thomas, Thompson, Thornley, Torok, Uhl, Weigel, Whipple, Williamson, G. Wilson, Wing, Young, Zebrack

Medical Library

Faculty: Zenan (Dir.)

Microbiology

Faculty: Courchesne, Hall, Henry, Hudig, Kozel (Ch.), Lupan, Nichol, St. Jeor, Redelman, Winicov

Obstetrics-Gynecology

Faculty: Aberman, J. Clark, Kelly (Ch.), Lipshitz, Rojas, Shapiro, Sheld, Tayengco

Clinical Faculty: Allanson, Allen, Ames, Anes, Avery, Beck, Belliveau, Bennett, Berman, Bodensteiner, Boruszak, Bossak, Bowen, Bower, Braly, Butler, Carlson, Chotiner, Crandall, DiSaia, Drake, Eisenman, Erickson, Fortier, Garcia, Glassman, Glick, Ho, Huneycutt, C. Johnson, Klose, Knutzen, Martell, McGaw, Mullis, Novick, Naughton, Parker, Proctor, Ramos, Recine, Resnik, Robertson, Rueckl, Sherwood, Stapleton, Stewart, Trout, Turner, Van Buren, Voyevidka, Wiig (Emeritus), Wrightson, Young

Office of Rural Health

Faculty: C. Ford, S. Semiatin

Pathology and Laboratory Medicine

Faculty: Anderson, Clark, Laubscher (Vice Chairman and Course Coordinator, Laboratory Medicine), Mackey, Manalo, Morris, O'Donnell, Palosaari, Parks, Ritzlin, Sohn (Ch.), Stock, Young

Clinical Faculty: Anes, Belliveau, Bolstad, Butler, Callister (Emeritus), Clark, Erling, Green, Hall, Hoffman, Hollander, Manilla, McCarty, McCusker, McMullen, McPherson, Molden, Mulkey, Salvadorini (Emeritus), Schrader, Sewell, Slaughter, Small, Soloway, Unger, Wilkes

Pediatrics

Faculty: Artman, Feldman, Frank, Johnson, Kurlinski, Larson, Lazerson (Ch.), Missall, Monibi, Morris, Peele, Peterson, Pokroy, Scott, Scully, Yup

Clinical Faculty: Ahn, Barnes, Batra, L. Bernstein, Buchanan, Cannon, Cardle, Carlile, Carter, Cass, Clift, Colletti, Coopersmith, Cortez, Diedrichsen, Dinwiddie, Downey, B. Dudding, G. Dudding, Ekpoudia, Evans, Farwig, Flynn, Fontana, Gharavi, Gordan, Greenwood, Halpern, Horsley, Hug-English, Jackson, Jolley, LeGrow, Mahon, Miller, Mousel, Mujica, Neyland, Pemberton, Premsrirut, Rajnovich, Rothstein, Shapiro, Stoker, Toth, White, C. Winder, J. Winder, Zenteno, Zucker

Pharmacology

Faculty: Billings, Bjur, Buxton, Gerthoffer, McCalden, Sutko, Westfall (Ch.)

Physiology

Faculty: Horowitz, Hume, Keef, Kenyon, Lardinois, Peacock, Publicover, Sanders (Ch.), Simmonds, Standish, Starich, Zanjani

Psychiatry and Behavioral Sciences

Faculty: Altrocchi, Antonuccio, Boutilier, Chappel, Chatham, Cole, Danton, Harris, Johnson, Mahaffey, Makahian, May, Miller, Murphy, Pauly (Ch.), Pope, Rahe, Small, Smith, Taber, Thrasher, Van Biber, Veach, Ward, Weiser, Worby, Young, Zimmerman

Clinical Faculty: Adamski, Bhoothalingom, Cardillo, K. Clark, O. Clark, Dillon, Foster, Glovinsky, Gould, Gutride, Henson, Horne, Howle, Irwin, Jensen, Lynn, Nims, Ocskay, Orchow, Podewils, Rasul, Roitman, Sheehan, Tanenbaum, Terry, Warren, Weiher, White, Young

Visiting Faculty: D. Smith, Mauksch, Saslow

Department of Radiology

Faculty: Barcia (Dir.), Darrah

Clinical Faculty: Amante, Bandt, Biddle, Boyden, Christenson, Debardelaben, Golding, Isaac, James, Kollins, Kremp, Lane, Laughlin, Learey, Martin, McNamara, Miercourt, Mulopulos, Rubenstein, Sanders

Speech Pathology and Audiology

Faculty: Dixon, Golberg, McFarlane (Ch.), Paynter, Summer, Tyler, Uken, Vogel, K. Watterson, T. Watterson

Clinical Faculty: Ahlstrom, Brophy, Dooley, Dyches, Stoker, Trimmer, West

Surgery

Faculty: Billings, Bowers, Gentilello, Little (Ch.), Marshall, McGregor, Savlov

Clinical Faculty: Allie, Banich, Baranoff, Batdorf, Bell, D. Berry, R. Berry, Black, Boyden, Boyers, Brady, Bradner,

Braunstein, Bray, Brophy, Bruce, Buchwald, Bunch, Caffereta, Cammack, Capanna, Carr, Cavin, Cecchi, Chino, Chowdry, D. Christensen, G. Christensen, Clark, Class, Clift, Colgan, Colquitt, Coppola, Cox, Cunningham, Curry, Dales, J. Daugherty, Dawson, Detmer, Dombrowski, Dooley, Doubrava, Dow, Dudek, Ebert, Edmiston, Ellis, Erculei, Ewing, Fathie, Feikes, Fisher, Fogel, Follmer, Ford, Fry, Gainey, Glass, Gott, Grace, Greenwald, Gwinn, Guy, Hall, Halvorson, Hamilton, Hammargren, Harris, Hastings, Hetter, Higgins, Hyde, Hyer, Iliescu, Jain, Randall Jones, Roy Jones, Juell, Kahn, Karch, Kemp, Kien, Knoop, Kollins, Kopf, Kozar, Levy, Lewin, Lewis, Litton, Lurie, MacDonald, Mahon, Markman, Marrone, McBride, McClish, McCuskey, McElreath, Megquier, Merino, Merriman, Millson, Milstein, Moore, Morelli, Mortenson, Moss, Mousel, Neuman, Niebaum, Nielsen, Noback, Orr, Owen, Ozobia, Parker, Pantazis, Parlasca, Perry, Plecha, Pratt, Pretto, Prutzman, Ram, Reinkemeyer, Robbins, Rosenauer, Russell, Rydell, Sande, Sargent, Schonder, Schultz, Scott, Seip, Serfustini, Selsnick, Shanz, Shearing, Simpson, Smith, Soper, Sparkuhl, Steadman, Stevens, Strand, Swanson, Swissman, Tangredi, Tappan, Tapper, Tate, Teipner, Thompson, Thornton, Tofigh, Twesme, Vitez, Vowles, Walker, Walsh, Warpinski, Waters, Watson, West, Westfield, Williams, Winter, Winne, Yeaton, Young, Zivot

Mackay School of Mines

Richard C. Bradt, *Dean*

Departments of Instruction: chemical and metallurgical engineering, geological sciences, and mining engineering.

Objectives

A major part of the economy of Nevada is directly tied to mineral production in the state. Availability of strategic mineral and energy resources to the national industrial base is now a matter of universal concern. A national concern for preservation of environmental quality dictates the use of wise and efficient methodologies for development and production of nonrenewable resources. The main objective of Mackay School of Mines is to provide a comprehensive education for geoscientists and mineral resource engineers seeking professional careers in the mineral and energy industries. The school is also interested in developing highly select, competent research scientists who will develop new insights into the origin of mineral and energy resources and their distribution in space and time, and to produce a few outstanding geoscientists who will make major contributions to improving understanding of the origin and evolution of the solid earth.

The curricula of the Mackay School of Mines are rigorous and demanding. Students desiring to enter the school should be well prepared in mathematics, physics and chemistry. Although the emphasis is on preparation for professional fields, courses for a well-rounded general education are built into the curricula.

Auxiliary Organizations

The Mackay School of Mines' two buildings, the 60,000 square-foot $11.1 million Laxalt Mineral Engineering Center and the 80,000 square-foot $9.6 million Laxalt Mineral Research Center, house classrooms and undergraduate and advanced laboratories for mining, chemical and metallurgical engineering and geological sciences. The laboratories are equipped with the latest modern and sophisticated research equipment. Renovation of the original Mackay School of Mines building will begin in 1990. When completed, it will house the expanded mines and engineering library, the mines museum and administrative offices.

The Mackay Mining Research Library supports undergraduate studies and graduate research in all disciplines. The Mackay Mining Museum has rare collections of minerals, Nevada ores, and fossils which are extensively used in teaching and research by faculty and students. The Nevada Bureau of Mines and Geology, Seismological Laboratory and Mackay Mineral Resources Research Institute share facilities in the same building complex. Teaching staff and laboratory facilities are augmented through programs conducted with the Water Resources Center and the U.S. Bureau of Mines which have large research centers on or near the campus. Close contact is also maintained with other state and federal agencies, as well as over 100 geological, geophysical, exploration, engineering, metallurgical, mining and petroleum companies having offices in the Reno area.

Degrees

The student may graduate in any of the curricula offered by the school as listed at the time of admission or graduation. The choice of electives must meet the approval of the department in which enrollment occurs, and in general, electives should be chosen to broaden the student's education in humanities and social studies or fields of study related to the major subject rather than to increase specialization in it. Undergraduate degrees are usually conferred within a field of concentration.

Required social studies or humanities electives must be selected from the prescribed list of courses.

Students desiring to pursue an academic minor follow the sequence of courses prescribed by the minor department and approved by the student's academic adviser.

A baccalaureate student enrolled in the school may earn and apply a maximum of 30 credits of S/U grades only in social studies, humanities, nontechnical electives, and a very few approved technical courses. These may be transferred in or taken at the University of Nevada, Reno and must be approved by the student's adviser.

The curricula leading to the bachelor of science degrees in chemical engineering, geological engineering, metallurgical engineering, and mining engineering are accredited by the Accreditation Board for Engineering and Technology, which is the agency accrediting engineering curricula throughout the U.S. and is recognized by the Council on Postsecondary Accreditation

The school offers study programs which enable students to earn the following degrees:

Bachelor of Science

Chemical engineering, geology, geological engineering, geophysics, metallurgical engineering, mining engineering

Master of Science

Geology, geological engineering, geochemistry, geophysics, hydrology and hydrogeology, metallurgical engineering, mining engineering

Doctor of Philosophy

Geology and related earth sciences, geophysics, hydrology, hydrogeology, and metallurgical engineering.

Professional Engineering Degrees

The professional engineering degrees, Geological Engineer (Geol.E.), Metallurgical Engineer (Met.E.), and Engineer of Mines (E.M.), may be conferred upon graduates of the Mackay School of Mines or upon graduates of other institutions who

have obtained the master of science degree in engineering from the university. Applicants must have been engaged in successful engineering work in positions of responsibility for a period of at least five years in the case of holders of the B.S. degree or four years for holders of the M.S. degree, and must submit theses showing ability to conduct advanced engineering work. These are not considered when they are merely investigations in literature, compilations of routine laboratory tests, or presentations of the work of others.

Professional engineering degrees may also be conferred upon graduates of the Mackay School of Mines and upon graduates of other engineering colleges of equal standing, who, after graduation, have been engaged for a period of at least one year in successful engineering work in a position of responsibility and who subsequently complete successfully one year of graduate work in engineering, including thesis, at the university.

Formal application for graduation with a professional engineering degree must be filed with the registrar not later than the beginning of the second semester of the year in which the degree is sought, and must be approved by the faculty of the Mackay School of Mines and by the graduate dean. The application must be accompanied by detailed and satisfactory evidence as to the extent and character of the applicant's professional work. The thesis must have the general form prescribed for the master's thesis or must be a reprint of an article appearing in a reputable professional journal. The thesis or publication in final form must be approved by a committee appointed by the graduate dean and must be presented to the faculty of the Mackay School of Mines and to the graduate dean at least eight weeks before the date set for conferring the degree.

CHEMICAL and METALLURGICAL ENGINEERING (CH E, METE)

Faculty: Aguirre, Bautista, Bradt, Chandra, Fuerstenau, Hendrix, Jones, Melkus, Misra, Reddy, Smith (Ch.)

Adjunct Faculty: Carnahan

Bachelor's Degrees

Chemical Engineering

Chemical engineers apply the basic principles of chemistry, physics, mathematics and related engineering disciplines to the production of goods and materials for the needs of society. A new graduate in chemical engineering has the capability for contributing immediately to these needs in industry or for pursuing advanced academic training. Graduates of the chemical engineering program in Mackay School of Mines are highly sought after by the mineral and process industries. In addition to the required 38 credits in chemical engineering, 26 credits in chemistry, 10 in physics, 16 in mathematics and computer programming, 12 in related engineering, and 24 in social science, students may select nine credits in technical and mathematical electives of special interest.

In addition to the general university requirement of a C average or higher, the student must have a C average or higher for all courses identified as CH E and METE for graduation.

Freshman Year
First Semester

	Credits
CHEM 201—General Chemistry for Scientists and Engineers	4
CH E 101—Industry Orientation Lectures	1
ENGL 101—Composition I	3
MATH 215—Calculus I	4
EC 101—Principles of Macroeconomics (or EC 102)	3
	15

Second Semester

	Credits
CH E 103—Computer Applications	2
CHEM 202—General Chemistry for Scientists and Engineers	4
ENGL 102—Composition II	3
MATH 216—Calculus II	4
PHYS 201—Physics for Scientists and Engineers I	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
	17

Sophomore Year
First Semester

	Credits
CH E 232—Principles of Metallurgical and Chemical Engineering	3
CHEM 343—Organic Chemistry	3
W T 201—Foundations of Western Culture	3
MATH 217—Calculus III	4
PHYS 202—Physics for Scientists and Engineers II	3
	16

Second Semester

	Credits
CH E 361—Chemical Engineering Thermodynamics	4
CHEM 330—Analytical Chemistry	4
CHEM 344—Organic Chemistry	3
MATH 320—Differential Equations (or M E 300)	2
PHYS 203—Physics for Scientists and Engineers III	3
W T 202—The Modern World	3
	19

Junior Year
First Semester

	Credits
CH E 372—Fluid Mechanics Lab	1
CH E 373—Fluid Mechanics	3
CH E 441—Heat Transfer Lab	1
CH E 484—Heat Transfer	3
CHEM 353—Physical Chemistry	3
M E 241—Statics	3
W T 203—The American Experience and Constitutional Change	3
	17

Second Semester

	Credits
CH E 442—Mass Transfer Lab	1
CH E 450—Techniques of Process Design and Economics	3
CH E 493—Mass Transfer	3
CHEM 354—Physical Chemistry	3
CHEM 355—Physical Chemistry Lab	2
EE 201—Introduction to Network Analysis	3
Fine arts core course	3
	18

Senior Year
First Semester

	Credits
CH E 440—Chemical Reactor Design	3
CH E 451—Control of Process Systems	3
CH E 470—Process Equipment Design	3
CH E 494—Equilibrium Stage Operations	3
Technical electives[1]	3
	15

Second Semester

	Credits
CH E 482—Design Project	3
C E 372—Strength of Materials	3

[1]Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chairman.

M E 242 – Dynamics	3
Social studies or humanities	3
Technical Electives[1]	3
Mathematics technical elective[2]	3
	18

Total credits required, 134. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Metallurgical Engineering

Metallurgical engineers apply the principles of science, mathematics and engineering to the extraction, refining, and utilization of metallic and non-metallic substances from their naturally occurring ores. A new graduate in metallurgical engineering has the capability for contributing immediately to industry needs or for advanced academic training. In addition to the required 49-52 credits in metallurgical and related chemical engineering, 18 credits in chemistry, seven in physics, 19 in mathematics and computer programming, nine-12 in related engineering and science, 24 in social studies, English, and the humanities, students may select five credits of technical electives of special interest.

In addition to the general university requirement of a C average or higher, the student must have a C average or higher for all courses identified as CH E and METE for graduation.

Freshman Year
First Semester

	Credits
CHEM 201 – General Chemistry for Scientists and Engineers	4
ENGL 101 – Composition I	3
MATH 215 – Calculus I	4
METE 101 – Industry Orientation Lectures	1
EC 101 – Principles of Macroeconomics (or EC 102)	3
	15

Second Semester

	Credits
CHEM 202 – General Chemistry	4
ENGL 102 – Composition II	3
MATH 216 – Calculus II	4
METE 103 – Computer Applications	2
PHYS 201 – Physics for Scientists and Engineers I	3
PHYS 204 – Physics for Scientists and Engineers Lab I	1
	17

Sophomore Year
First Semester

	Credits
CHEM 330 – Analytical Chemistry	4
W T 201 – Foundations of Western Culture	3
MATH 217 – Calculus III	4
METE 232 – Principles of Metallurgical and Chemical Engineering	3
PHYS 202 – Physics for Scientists and Engineers II	3
	17

Second Semester

	Credits
CH E 361 – Chemical Engineering Thermodynamics	4
E E 212 – Introduction to Electrical Engineering	3
MATH 320 – Differential Equations	2
M E 241 – Statics	3
METE 350 – Elements of Material Science	3
W T 202 – The Modern World	3
	18

Junior Year
First Semester

	Credits
C E 372 – Strength of Materials	3
CHEM 353 – Physical Chemistry	3
GEOL 211 – Mineralogy (or METE 460)	3
METE 373 – Fluid Mechanics	3
METE 484 – Heat Transfer	3
W T 203 – The American Experience and Constitutional Change	3
	18

Second Semester

	Credits
CHEM 354 – Physical Chemistry	3
METE 322 – Mineral Processing I	3
METE 324 – Mineral Processing Lab	1
METE 450 – Techniques for Process Design and Economics	3
METE 461 – Physical Metallurgy II	3
METE 493 – Mass Transfer	3
	16

Senior Year
First Semester

	Credits
CH E 440 – Chemical Reactor Design	3
METE 410 – Extractive Metallurgy I-Pyrometallurgy	3
METE 411 – Pyrometallurgy Lab	1
METE 431 – Extractive Metallurgy II-Hydrometallurgy	3
METE 470 – Process Equipment Design	3
Fine arts core course	3
Technical electives[1]	2
	21

Second Semester

	Credits
METE 416 – X-Ray Diffraction	3
METE 482 – Design Project	3
Mathematics technical elective[2]	3
Social studies or humanities	3
Technical electives[1]	3
	15

Total credits required, 134. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Minor in Materials Science

The Department of Chemical and Metallurgical Engineering offers an undergraduate minor in materials science for students majoring in engineering and physical sciences. Materials selection and the relationship between structure and properties of materials are often critical in the development of new technologies in engineering and the physical sciences. The university requires at least 18 credits in the minor field of study, nine of which must be upper-division 300- or 400-level courses. The department requires that a minimum 12 credits of the 18 be taken within the Department of Chemical and Metallurgical Engineering from the list below. The remaining six or more credits may be taken from the second list of approved courses in other departments. Any of the 18 credits may also satisfy other requirements in the undergraduate major.

An adviser must be selected from the department to approve student plans for the minor in cooperation with the regularly assigned adviser in the major field of study. To receive official recognition of the minor, a student must request such recognition on the Application for Graduation.

Required Courses	Credits
METE 332 – Unit Processes of Chemical Metallurgy	3
METE 350 – Elements of Materials Science	3
METE 401 – Corrosion of Metals	3
METE 416 – X-Ray Metallography	3
METE 451 – Physical Metallurgy	3
METE 472 – Introduction to Ceramics	3
C E 246 – Construction Materials	3
C E 369 – Non-Metallic Testing Laboratory	1
C E 372 – Strength of Materials	3

[1]Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chairman.

[2]The courses in the mathematics technical elective category are: MATH 251, 321, 330, 353, M E 402, 403

C E 374—Materials Testing Laboratory	1
C E 420—Advanced Portland Cement Concrete	3
C E 431—Pavement Design Rehabilitation and Maintenance	3
E E 202—Materials in Electrical Engineering	2
M E 430—Materials	2
M E 445—Advanced Mechanics	3
M E 446—Composite Materials	3
PHYS 421—Modern Physics	3
PHYS 426—Introduction to Solid State Physics	3
PHYS 473-474—Electricity and Magnetism	6

Advanced Degrees

The department offers individual programs leading to the master of science and doctor of philosophy degrees in metallurgical engineering. The general university requirements for these advanced degrees are listed in the Graduate School section.

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in metallurgy, chemical engineering, and/or related science must have been completed. In addition, the student must qualify in at least one of the following requirements: (1) GPA of 2.75 in the four years of undergraduate work, (2) GPA of 3.0 for the last two years of undergraduate work, or (3) acceptable scores on the verbal and quantitative parts of the Graduate Record Examination aptitude test, with letters of recommendation from former instructors indicating capability for advanced course work and research.

Prospective students are advised to write directly to the chairman, Department of Chemical and Metallurgical Engineering, with an outline of major interests, experience and transcripts. Formal application is completed through the Office of Admissions and Records.

The department has several graduate fellowships, research assistantships, and teaching assistantships. Requests for assistance should be submitted prior to March 15, but all applications will be considered regardless of date of submission.

In order to assure well-balanced training and experience, all graduate students are required to participate in teaching and research.

GEOLOGICAL SCIENCES (GEOL)

Faculty: Anderson, Brune, Carr, Case, Cochran, Davis, Firby, Hess, Hibbard, Hsu, E. Jacobson, R. Jacobson, Karlin, L. Larson (Ch.), Noble, Priestley, Schweickert, Taranik, Trexler, Watters, Wheatcraft

Adjunct Faculty: Gillett, Hardyman, Raines

Bachelor's Degrees

The curricula leading to the degree of bachelor of science include geology, geological engineering, and geophysics.

Geology

The curriculum leading to the degree of bachelor of science in geology is offered primarily for those students who wish to obtain a broad education in geology and related basic sciences. The proper choice of electives permits the student to emphasize certain phases of geology, such as "hard rock," "soft rock," or environmental studies. These electives must be approved by the adviser.

Freshman Year
First Semester

	Credits
MATH 213—Calculus for Science I (or MATH 215)	3-4
ENGL 101—Composition I	3
Foreign language[1]	4
GEOL 101—Our Dynamic Planet Earth	3
GEOL 103—Physical Geology Lab	1
	14-15

Second Semester

	Credits
MATH 214—Calculus for Science II (or MATH 216)	3-4
ENGL 102—Composition II	3
Foreign language[1]	4
GEOL 102—History of the Earth	4
	14-15

Sophomore Year
First Semester

	Credits
CHEM 201—General Chemistry for Scientists and Engineers	4
Foreign language[1]	2-3
GEOL 211—Mineralogy	3
PHYS 201—Physics for Scientists and Engineers I	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
Computer course	2-3
	15-17

Second Semester

	Credits
CHEM 202—General Chemistry for Scientists and Engineers	4
Foreign language[1]	2-3
GEOL 212—Elementary Petrology	3
Geology elective	2-3
PHYS 202—Physics for Scientists and Engineers II	3
PHYS 205—Physics for Scientists and Engineers Lab II	1
	15-17

Junior Year
First Semester

	Credits
GEOL 332—Structural Geology	4
GEOL 468—Sedimentology	3
W T 201—Foundations of Western Culture	3
EC 101—Principles of Macroeconomics (or EC 102)	3
Fine arts core course	3
	16

Second Semester

	Credits
EC 101—Principles of Macroeconomics I (or EC 102)	3
GEOL 341—Geomorphology	3
GEOL 450—Field Methods	1
GEOL 469—Principles of Stratigraphy	3
G E 385—Geological Engineering Data Analysis	3
W T 202—The Modern World	3
	16

Summer Camp

	Credits
GEOL 451—Summer Field Geology	6

Senior Year

	Credits
GEOL 425—Advanced Mineralogy	4
GEOL 461—Invertebrate Paleontology	4
W T 203—The American Experience and Constitutional Change	3
Electives	3-6
	14-17

[1]Foreign language requirement is the same as the College of Arts and Science.

Second Semester

	Credits
Economic Geology (G E 484, or GEOL 471)	3-4
Geology elective	3-4
Electives	6-9
	12-17

Total credits required, 128. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Geological Engineering

The curriculum leading to the degree of bachelor of science in geological engineering is designed to develop professional abilities in both engineering and the geological sciences. The program provides instruction in both geology and engineering before specialization in the senior year. A geotechnical option in the civil, mining petroleum, and consulting engineering fields, or a resources and environment option, allied to the mineral industries, and environmental planning, may be selected. Technical electives approved by the adviser provide flexibility within either option.

Seniors are required to take the engineers-in-training examination.

Freshman Year
First Semester

	Credits
CHEM 101—General Chemistry	4
ENGL 101—Composition I	3
G E 106—Introduction to Geological Engineering	1
GEOL 101—Our Dynamic Planet Earth	3
GEOL 103—Physical Geology Lab	1
MATH 215—Calculus I	4
	16

Second Semester

	Credits
CHEM 102—General Chemistry	4
GEOL 102—History of the Earth	4
MATH 216—Calculus II	4
PHYS 201—Physics for Scientists and Engineers I	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
	16

Sophomore Year
First Semester

	Credits
EC 101—Principles of Macroeconomics (or EC 102)	3
G E 385—Geological Engineering Data Analysis	3
GEOL 211—Crystallography-Mineralogy	3
MATH 217—Calculus III	4
PHYS 202—Physics for Scientists and Engineers II	3
PHYS 205—Physics for Scientists and Engineers Lab II	1
	17

Second Semester

	Credits
ENGL 102—Composition II	3
GEOL 212—Elementary Petrology	3
M E 241—Analytic Mechanics for Engineers	3
M E 300—Introduction to Engineering Mathematics	2
W T 201—Foundations of Western Culture	3
Fine arts core course	3
	17

Junior Year
First Semester

	Credits
C E 372—Strength of Materials	3
G E 483—Geological Engineering Slope Stability	4
GEOL 332—Structural Geology	4
GEOL 468—Sedimentology	3
MINE 213—Computer Programming	2
	16

Second Semester

	Credits
C E 141—Engineering Measurements	3
C E 367—Elementary Fluid Mechanics	3
C E 492—Soil Mechanics	3
GEOL 341—Geomorphology	3
M E 371—Thermodynamics I (or equivalent)	3
Technical electives[1]	3
	18

Summer Camp

	Credits
GEOL 451—Summer Field Geology	6

Senior Year
(Geotechnical Option)
First Semester

	Credits
SPCM 113—Fundamentals of Speech Communication	3
G E 478—Computer Applications in Geological Engineering	3
G E 479—Earthquake Engineering	3
G E 484—Groundwater Hydrology	3
W T 202—The Modern World	3
	15

Second Semester

	Credits
G E 485—Geological Engineering: Support and Stabilization Techniques	4
GEOL 487—Geological Engineering Design	4
GEOL 492—Geophysical Exploration	3
W T 203—The American Experience and Constitutional Change	3
Technical electives[2]	3
	17

Senior Year
(Resources & Environment Option)
First Semester

	Credits
GEOL 425—Advanced Mineralogy	4
GEOL 480—Environmental Geology	3
Social studies or humanities	6
Technical electives[2]	3
	16

Second Semester

	Credits
SPCM 113—Fundamentals of Speech Communication	3
GEOL 471—Ore Deposits	3
G E 485—Geological Engineering Support and Stabilization Techniques	4
GEOL 492—Geophysical Exploration	3
Social studies or humanities	3
	16

Total credits required, 138. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Geophysics

The curriculum leading to the degree of bachelor of science in geophysics is offered because of a strong interest among students, industry, and research organizations for trained personnel in such fields as gravity, magnetic and electrical, seismic exploration, theoretical seismology and electromagnetic remote sensing. Basic skills in physics and mathematics, as well as geology and geophysics, are required for this major. Optional courses are offered for students planning to continue beyond the B.S. degree.

[1]Technical electives are to be selected from an approved list obtainable from each student's adviser.
[2]Technical electives common to both options: C E 493, GEOL 446, 493, MINE 241, 246, 301, 448.
Additional technical electives for geotechnical option: GEOL 471, 480.
Additional technical electives for resources and environment option: GEOL 479, 489, 484

Freshman Year
First Semester

	Credits
CHEM 101—General Chemistry (or CHEM 201)	4
ENGL 101—Composition I	3
GEOL 101—Our Dynamic Planet Earth	3
GEOL 103—Physical Geology Lab	1
MATH 215—Calculus I	4
	15

Second Semester

	Credits
CHEM 102—General Chemistry (or CHEM 202)	4
GEOL 102—History of the Earth	4
MATH 216—Calculus II	4
PHYS 201—Physics for Scientists and Engineers I	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
	16

Sophomore Year
First Semester

	Credits
ENGL 102—Composition II	3
GEOL 211—Mineralogy	3
MATH 217—Calculus III	4
MINE 213—Computer Programming	2
PHYS 202—Physics for Scientists and Engineers II	3
PHYS 205—Physics for Scientist and Engineers Lab II	1
	16

Second Semester

	Credits
EC 102—Principles of Microeconomics	3
GEOL 212—Elementary Petrology	3
GEOL 290—Elementary Geophysics and Geodynamics	3
MATH 320—Differential Equations	2
PHYS 203—Engineering Physics III	3
PHYS 206—Engineering Physics Lab III	1
Fine arts core course	3
	17

Junior Year
First Semester

	Credits
GEOL 332—Structural Geology	4
PHYS 351—Mechanics	3
PHYS 355—Physical Electronics	3
W T 201—Foundations of Western Culture	3
Technical electives[1]	3
	16

Second Semester

	Credits
GEOL 450—Field Methods	1
GEOL 492—Geophysical Exploration	3
M E 403—Partial Differential Equations in Engineering	3
PHYS 352—Mechanics	3
PHYS 466—Introduction to Microcomputer Interfacing	3
W T 202—The Modern World	3
	16

Summer Camp

	Credits
GEOL 451—Summer Field Geology	3 or 6

Senior Year
First Semester

	Credits
Geology elective (469, 471, 482)	3-4
GEOL 455—Physics of the Earth	3
GEOL 490—Elementary Seismology	3
PHYS 473—Electricity and Magnetism	3
W T 203—The American Experience and Constitutional Change	3
	15-16

Second Semester

	Credits
GEOL 456—Physics of the Earth	3
GEOL 491—Earthquake Seismology	3
GEOL 494—Geophysics and Potential Theory	3
Social studies or humanities	3
Technical electives[1]	3
	15

Total credits required, 130. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Advanced Degrees

The department offers master of science and doctor of philosophy degrees in geology and related earth sciences, geophysics, hydrology and hydrogeology and master of science in geological engineering. The general university requirements for all advanced degrees are listed in the Graduate School section. Additional specific requirements are outlined in the four programs described below.

Foreign Language Requirements

In some instances, the student's Advisory Examining Committee may require a demonstration of ability to read and comprehend the technical literature in a second foreign language.

General Admission Procedures

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in geology and/or related fields must be completed.

Minimum departmental requirements for *consideration of application* are: 1) an undergraduate four-year GPA of 2.75 or a 3.0 GPA for the last two years of undergraduate study; 2) GRE combined score of 1050 or higher in verbal plus quantitative sections; 3) Advanced GRE score of 580 or higher (applicants for advanced degrees in hydrogeology and geological engineering are not required to take the advanced examination). The applicant must fulfill all requirements of the Office of Admissions and Records and, in addition, must: 1) have three letters of recommendation sent to the chairman of the department certifying the ability of the applicant to perform graduate-level work; 2) send the chairman a brief letter specifying the area(s) of interest in the geological sciences in which study is desired. *Complete applications* (with letters of recommendation) must be received no later than March 15 for fall semester admission or October 15 for spring semester admission.

The Ph.D. program requires an overall GPA of 3.0 or higher. Provisional admission is permitted with GPAs below 3.0 in exceptional cases. Other requirements are the same as listed for the master's degree. For general requirements, the student is referred to the Graduate School section.

Detailed descriptions of the graduate programs, staff interests, and research facilities are available upon request from the chairman of the Department of Geological Sciences. Prospective students are encouraged to write directly to the chairman, 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.

[1]Technical electives may be selected in a field of special interest to the student, they must be approved by the adviser and the department chairman.

Master of Science and Doctor of Philosophy Degrees in Geology; Master of Science Degree in Geological Engineering

The student may work with either a major or major-minor program in geology or geological engineering, whichever is more appropriate to the individual's goals and basic training. In addition to advanced degrees listed below, specialization can include one or more of such fields as active tectonism, earth science, engineering geology, exploration geophysics, economic geology, geochemistry, hydrogeology, mineral exploration, mineralogy, ore deposits, paleontology, petrography and petrology of igneous and metamorphic rocks, sedimentation, seismology, stratigraphy, volcanology, etc. The location of the university campus at the edge of the Basin and Range and Sierra Nevada geological provinces gives it a unique advantage for field or regional studies. The exceptionally complete chemical, geophysical, hydrologic, petrographic, atomic absorption, paleomagnetic, DTA, X-ray, SEM and other facilities make it possible to undertake laboratory studies in geochemistry, geophysics, hydrogeology, mineralogy, mineralization, petrography, and petrochemistry.

Students enrolled in a master's program are required to take the department's comprehensive examination no later than their third semester. Examinations required for the Ph.D. degrees are outlined in the Graduate School section of this catalog.

Master of Science and Doctor of Philosophy Degrees in Geophysics

Facilities for research in this area include an array of both permanent and portable seismographic stations, refraction and reflection seismic field equipment, instruments for gravity, magnetic, resistivity, self-potential studies, and equipment for field and laboratory studies with electromagnetic remote sensing data. Student support is available under a number of research assistantships. Graduate study in this field has centered on both theoretical and practical work in seismology, gravity, and other geophysical fields, taking advantage of the unique character of the Basin and Range and Sierra Nevada regions.

Students enrolled in the master's program are required to take written comprehensive examination no later than their third semester. Examinations required for the Ph.D. degrees are outlined in the Graduate School section of this catalog.

Master of Science and Doctor of Philosophy Degrees in Hydrology and Hydrogeology

The degrees of master of science and doctor of philosophy may be earned in hydrology and hydrogeology in an interdisciplinary program. Advanced degrees in hydrology and hydrogeology are offered in geology. Entering students should have a bachelor of science degree in geology, geological engineering or geophysics.

Depending upon the individual's specific goals, an interdisciplinary committee is appointed for each student to establish the appropriate program, which normally includes among the basic courses: hydrogeology, hydrometeorology, engineering hydrology, renewable natural resources, water resources projects, and advanced hydrology.

Examination procedures for these degrees are given in the Graduate School section of this catalog.

MINING ENGINEERING (MINE)

Faculty: Briggs, Danko, Fuerstenau (Ch.), Mousset-Jones, Taylor

Adjunct Professor: Jucevic, Saint-Aubin

Bachelor's Degree

The department offers a bachelor of science in mining engineering degree which includes courses in mine design, mining technology, computer applications to operations control and management, environmental concerns, industrial safety and health, and mineral economics. The curriculum is arranged to provide a broad basic background for a modern mining engineer, as preparation either for industrial employment immediately after graduation or for further advanced study. The department maintains close liaison with state and federal bureaus of mines and with the mineral industry. Field excursions are arranged during the academic year, and students are required to take up paid employment in the minerals industry during at least one summer vacation. Some cooperative work-study programs are arranged for this purpose.

The Professional EIT examination administered by a State Board of Engineering Registration must be taken by all mining engineering students before graduation during the senior year of study.

Freshman Year
First Semester

	Credits
CHEM 101—General Chemistry (or CHEM 201)	4
ENGL 101—Composition I	3
GEOL 101—Our Dynamic Planet Earth	3
GEOL 103—Physical Geology Lab	1
MATH 215—Calculus I	4
MINE 101—Industry Orientation Lectures	1
	16

Second Semester

	Credits
CHEM 102—General Chemistry (or CHEM 202)	4
ENGL 102—Composition II	3
MATH 216—Calculus II	4
MINE 102—Mineral Map Making	2
PHYS 201—Engineering Physics I	3
PHYS 204—Engineering Physics Lab I	1
	17

Summer

	Credits
MINE A—Mineral Industry Employment (Report Required)	none

Sophomore Year
First Semester

	Credits
AGEC 270—Introduction to Statistics	3
GEOL 211—Mineralogy	3
MATH 217—Calculus III	4
M E 241—Analytic Mechanics for Engineers	3
MINE 210—Mining Methods	3
MINE 213—Computer Programming	2
	18

Second Semester

	Credits
M E 242—Dynamics	3
M E 299—Differential Equations	3
MINE 342—Mine Surveying	1
PHYS 202—Engineering Physics II	3
PHYS 205—Engineering Physics Lab II	1
W T 201—Foundations of Western Culture	3
Fine arts core course	3
	17

Summer

	Credits
MINE 343—Applied Mine Surveying	2

Junior Year
First Semester

	Credits
C E 367—Fluid Mechanics	3
E E 212—Introduction to Electrical Engineering	4
GEOL 332—Structural Geology	4
M E 371—Thermodynamics I	3
MINE 361—Operations Research Methods	3
	17

Second Semester

	Credits
MINE 448—Rock Mechanics I	3
EC 102—Principles of Microeconomics	3
METE 322—Mineral Processing I	3
METE 324—Mineral Processing Lab	1
MINE 310—Materials Handling	3
MINE 344—Mine Environmental Control	3
	16

Senior field trip required for graduation.

Senior Year
First Semester

	Credits
GEOL 471—Ore Deposits	3
MINE 411—Mine Economics	2
MINE 413—Mineral Inventory Estimation	2
MINE 425—Mine Power and Drainage	3
MINE 449—Rock Mechanics II	3
MINE 472—World Mineral Economics	3
Technical elective[1]	2
	18

Second Semester

	Credits
MINE 400—Mining Communication	1
MINE 445—Drilling and Blasting	3
W T 202—The Modern World	3
W T 203—The American Experience and Constitutional Change	3
Technical electives[1]	2
	12

Total credits required, 137. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Advanced Degrees

The department offers individual programs leading to the degree of master of science in mining engineering. The student can elect to pursue one of two tracks. The first is a traditional mining engineering program with specialization in fields such as computer applications, automation, mine design, rock mechanics and materials handling. The second is an option in mineral economics allowing the student to specialize in fields relating to mine management, operations research and mineral economics. The general university requirements for these advanced degrees are listed in the Graduate School section.

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in mining engineering or related sciences must have been completed. In addition, the student must qualify in at least one of the following requirements: (1) GPA of 2.5 in the four years of undergraduate work, (2) GPA of 3.0 for the last two years of undergraduate work, or (3) acceptable scores on the verbal and quantitative parts of the Graduate Record Examination aptitude test, with letters of recommendation from former instructors indicating capability for advanced course work and research.

Prospective students are advised to write directly to the chairman, Department of Mining Engineering, with an outline of major interests, experience, and transcripts. Formal application is completed through the Office of Admissions and Records.

The department has several graduate fellowships, research assistantships, and teaching assistantships. Requests for assistance should be submitted prior to March 15, but all applications will be considered regardless of date of submission.

A written comprehensive examination is required of all mining engineering graduate students. A passing grade is required for the exam and only two attempts are allowed. Failure to pass after two attempts results in suspension from the graduate program.

[1]Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chairman.

Orvis School of Nursing

Sydney D. Krampitz, *Dean*

Faculty: Cheek, Chu, Devee, Dinan, Droes, Ervin, Farnham, Harmon, Hatton, Hostetter, Krampitz, Lacey, Rubin, Schorr, Schroeder, Veach

The Orvis School of Nursing offers a bachelor of science in nursing degree and a master of science degree with a major in nursing.

The Baccalaureate Degree Program

The Orvis School of Nursing curriculum provides learning opportunities for students that enable them to develop and demonstrate the ability to: use the knowledge derived from the humanities and behavioral, physical, and natural sciences in order to assess, plan, implement, and evaluate the health care of clients—individuals, families, and groups; strive for productive health care delivery which is congruent with contemporary cultural, social, and scientific values; provide nursing care for clients in primary, secondary and tertiary health care settings; collaborate, coordinate, and consult with colleagues on the interdisciplinary health teams in the delivery of health care; accept individual responsibility and accountability for nursing interventions and their results; and strive for continuing personal growth and identity.

The baccalaureate program is designed to provide the high school graduate, as well as the registered nurse, the opportunity to obtain a baccalaureate degree in nursing.

This is the basic preparation for professional nursing practice and for advancing toward positions of leadership in nursing. Upon completion of the program the graduate is qualified for positions in public health nursing, school nursing, hospital and other health agencies, commissioned status in the military nursing services, as well as admission to graduate education. This program is approved by the Nevada State Board of Nursing and accredited by the National League of Nursing.

Course descriptions are currently being revised and additional information can be obtained from the school.

Curriculum Requirements

I. Total number of credits required for graduation, 128
   Upper-division credits—64-68 required
   Lower-division credits—60-64 required

II. Lower-division requirements for prenursing majors.

Natural Sciences	*Credits*
Inorganic and Organic Chemistry: CHEM 101, 142, 143-	8-9
Anatomy and Physiology: BIOL 262, 263-	6
Microbiology: BIOL 251-	3
Nutrition: NUTR 223	3
Mathematics (MATH 105 or higher)	3
Elective[1]	3
Natural science elective[1]	3
	29-30
Behavioral Science	
SOC 101	3
PSY 101	3
HDFS 274—The Individual and the Family	4
Cultural ethnic course[1]	3
Behavioral science electives[1]	3
	16
Communication Skills	
ENGL 101, 102	6
H R 234—Clinical Interviewing Skills	3
	9
Humanities	
W T 201—Foundations of Western Culture	3
W T 202—The Modern World	3
W T 203—The American Experience and Constitutional Change	3
Fine arts course	3
	66-67

III. Upper-division requirements for nursing majors.

A. Nursing science, self-learning skills laboratories, and clinical practica: NURS 301, 302, 303, 314, 315, 324, 325, 326, 401, 402, 414, 415, 416, 424, 425	53
B. Basic statistics course (or elective)	3-4
C. Basic research methodology course – nursing research: NURS 444	3
D. Clinical pharmacology	4
	67-68

IV. Progression Policies.

A. Progression to the junior nursing sequence requires:
   1. Formal application due mid-spring semester.
   2. 2.75 grade point average (GPA) on completion of all lower-division courses.
   3. Only prerequisite courses, exclusive of general electives, are considered for selection to the upper-division nursing major. Grade point average is calculated from these prerequisite courses and this GPA is used for selection purposes.
   4. A grade of C or higher is required for all prerequisite courses, exclusive of general electives.
   5. Completion of all lower-division course requirements by the end of spring semester of sophomore year in the prenursing major.
   6. Junior standing at the University of Nevada, Reno by the end of spring semester of sophomore year in prenursing major (60 credits).
   7. Students who complete the requirements during the summer session will be considered on a space available basis at the discretion of the dean and selection committee. This process is instituted with the selection of those students meeting requirements identified in items 1 through 6.
   8. All required prerequisite courses for progression to the upper division must be taken for a grade, not on an S/U basis. Transfer and change of major students' S/U credit is evaluated on an individual basis.

[1]Select from a variety of identified courses.

Note: Fulfillment of the above criteria does not imply automatic progression to the nursing major. Students are selected on the basis of academic achievement and therefore are ranked according to GPA. From the rank-ordered list of students and their GPAs, the predetermined number of student positions is filled. This procedure is used each year. Any student matriculating in the Orvis School of Nursing prior to 1985 has the option of using the new admission rules.

B. Progression within the nursing sequence:
   1. Maintenance of a 2.0 cumulative GPA and achieving a minimum grade of C in each nursing course.
   2. Regardless of the combined grade in either a theory or practice course, each student must achieve a minimum of a C grade in each specialty area.
   3. A grade of C or better is required in pharmacology, statistics and research for progression within the nursing sequence.
   4. A student in the upper division of nursing may have to withdraw from the program for academic or nonacademic reasons. The following criteria are considered for reentry to the nursing major.

      A student has three years from the date of admission to the upper-division nursing major to complete requirements for graduation.

      Reentry into the upper division following withdrawal for academic reasons is extended to only *one* time. Reentry for nonacademic reasons is at the discretion of the Admissions and Progressions Committee in consultation with the dean.

      Academic Withdrawal: The student who is: (1) failing a nursing course, (2) considered clinically unsafe, or (3) receives less than a C as a final grade will be given the option to return to the incompleted level the following academic year. This privilege is limited to *one* time.

      Nonacademic Withdrawal: The student who withdraws for "personal reasons" is requested to state, *in writing,* at the time of withdrawal: (1) the exact reason for withdrawal, (2) intention/nonintention of returning to the program, (3) expected date of reentry into program. Withdrawals due to financial difficulties, death or serious illness in the immediate family, or serious personal illness are considered valid reasons for return to the incompleted level. The student must be receiving a passing grade in clinical and theory at the time of withdrawal. The privilege to return is at the discretion of the Admissions and Progressions Committee, in consultation with the dean. Students with extraordinary personal circumstances are given individual consideration. All students should contact their adviser to discuss plans for withdrawal.

      Readmission: Students seeking readmission to the upper division of nursing must do the following: (1) see their adviser to complete a readmission petition at least *four* months prior to the appropriate academic semester, (2) students who withdraw for nonacademic reasons must provide rationale that "personal reasons" have been resolved, (3) inform the Admissions and Progressions Committee of their intent to return to the upper division at least *four* months prior to return, and (4) any student returning to the upper division may be asked to demonstrate competency in nursing skills when returning to Level II, III or IV.
   5. Any student who withdraws and/or transfers from the upper division of the nursing major must apply directly to Orvis School of Nursing for consideration of readmission and placement into the upper division in nursing. Eligibility depends upon space available and meeting current OSN progression requirements to the junior year.
   6. Any student who withdraws from NURS 314, 325, 415, 424 must also withdraw from NURS 315, 326, 416, and 425 respectively.
   7. All nursing practice courses must be taken concurrently with nursing theory and skills laboratory courses.
      a. NURS 301, 303, 314, 315
      b. NURS 302, 325, 326
      c. NURS 401, 415, 416
      d. NURS 402, 424, 425

      A generic student (one who has not completed the requirements for licensure as a registered nurse) who withdraws for *academic reasons* from any nursing course is required to withdraw from *all* concurrent nursing courses.

      A generic student who withdraws from a nursing course for *personal reasons,* but is passing at the time of withdrawal, may be permitted to waive the concurrency policy upon the discretion of the Admissions and Progression Committee and/or the dean.

      Registered nurse students are considered on an individual basis.
   8. Clinical pharmacology and statistics must be taken for a letter grade.

C. Students, after consultation with their advisers, may petition for course substitutions or other considerations relevant to OSN curriculum requirements. Required courses completed more than 10 year previous to application to the nursing major must be evaluated on relevancy and currency of content. Those requests for course substitutions or waivers not covered by an adviser's approval may be submitted to the chairman of the Admissions and Progressions Committee for consideration.

D. Satisfactory/Unsatisfactory Grading:
   1. A baccalaureate student may earn a maximum of 30 semester credits in courses graded on an S/U basis.
   2. A transfer student who has taken a course on an S/U basis must submit the course for evaluation and placement within the curriculum to the Admissions and Progressions Committee.

E. Special Examination:
   1. Consideration is given to credit by special examination for individual students in accordance with the university policies.
   2. Registered nurse students may earn up to 28 nursing credits by special examinations.

F. Independent Study:
   1. Opportunity is provided for individual students to pursue ideas of particular interests and needs through independent study courses.

SPECIAL NOTE: Students are required to provide their own tape recorders, bandage scissors, glasses, watches with second hands, stethoscopes, laboratory coats, uniforms, name pins, health and liability insurance, and transportation.

Students must also provide documentation of a physical examination, chest X-ray, or the equivalent within six months prior to enrollment in both the junior and senior years of the program.

A rubella titer is required prior to matriculation in the junior year of the program. Other immunizations or tests may be required prior to admission.

Current CPR certification is required for all students during their junior and senior years.

Advanced Placement for Registered Nurses

Orvis School of Nursing has a program designed for registered nurses seeking the bachelor's degree. Lower-division requirements may be met by transfer of appropriate coursework and 28 upper-division nursing credits may be earned by special examination. Registered nurses enrolled in upper-division nursing must be licensed in the state of Nevada. For details, please call the school and ask to speak to a registered nurse adviser.

Master of Science Program

Graduate education in nursing prepares nurses for leadership in health care. It further develops clinical competence and increased sophistication in exploring and identifying a theoretical framework for nursing practice.

Graduate education serves as an introduction to scholarly activity for those who wish to pursue the doctoral degree in nursing. The focus is on the search for nursing knowledge, analysis and evaluation of nursing theory and the study of strategies of application.

Graduate education also provides the opportunity for students to further realize their creative potentials and collaborate with other health professions in effecting changes in nursing practice and health care.

The program offers two options: clinical specialist and nursing administration. Within the clinical specialist option, students select a specific track in adult health, psychiatric/mental health or childrearing family. All students are expected to develop competence in using the research process.

The Master of Science program is accredited by the National League for Nursing.

The program requirements range from 44 to 50 semester credits with an option for thesis or professional paper.

The academic requirements to be considered for admission are:

1. Graduate Record Examination (GRE): Aptitude section, a minimum combined score of 1000 is required on the verbal and quantitative sections.
2. An undergraduate overall GPA of 2.75 or higher or a GPA of 3.0 or higher on the last half of the undergraduate program.
3. Completion of a bachelor of science degree with an upper-division major in nursing *from an NLN Accredited School of Nursing*, to include the following specific coursework:
   a. Statistics
   b. Growth and development (must cover life span)
   c. Basic research
   d. Physical-psycho-social assessment
   e. Nursing diagnosis

Additional requirements for admission are:

1. Verification of current registration to practice nursing in the U.S. Evidence of registration in Nevada is required prior to actual registration in the program for those selected.
2. A personal statement of goals for graduate study.
3. Three letters of reference which address applicant's potential for success in graduate school: one from former faculty; one from employer or supervisor; one from an individual of choice.

Applicants must apply for admission through the university Office of Admissions and Records.

Prerequisites taken 10 years or more prior to entry into the graduate program are evaluated on an individual basis by the student's graduate adviser.

The total number of credits required varies according to the options selected. The *minimum* number of credits required for completion of the master's degree is 44 credits.

Graduate-level courses officially accepted in transfer to the University of Nevada, Reno may be considered to satisfy specific course requirements in the nursing program. The student must provide specific course information for department review to determine if the content is equivalent or comparable to the university requirement. If approved, such courses may be included in the official program of study to satisfy the degree requirement.

Satisfactory/Unsatisfactory Grading

Graduate students must achieve a grade of B or above in each required graduate-level nursing course. Students who receive less than a B in a required graduate nursing course may repeat that course one time only.

Prerequisites for 700-Level Courses in Nursing

A prerequisite for *all* 700-level courses in nursing is admission to the graduate program in the School of Nursing.

Objectives for the Master of Science Program

Clinicial Specialist Option

Upon completion of the master's program, the graduate will:

1. Practice an advanced clinical nursing role within a theoretically based framework with patients and families in a selected health care environment.
2. Demonstrate competence in a selected functional area.
3. Use the process and method of scientific inquiry in the study of nursing.
4. Contribute to the development of nursing science.
5. Function as a change agent within a selected health care environment.
6. Acquire a foundation for doctoral study in nursing.

Program of study	*Credits*
NURS 706—Theoretical Foundations of Nursing	3
NURS 708—Nursing Theories and Family Health Patterns	3
NURS 720—Research in Nursing	3
NURS 721—Clinical Phenomena I	3
NURS 731—Clinical Phenomena II	3
NURS 722—Advanced Nursing Practice I Adult Health	3
OR	
NURS 723—Advanced Nursing Practice I Psychiatric/Mental Health	3
OR	
NURS 724—Advanced Nursing Practice I Childrearing Family	3
NURS 732—Advanced Nursing Practice II Adult Health	3
OR	
NURS 733—Advanced Nursing Practice II Psychiatric/Mental Health	3
OR	
NURS 734—Advanced Nursing Practice II Childrearing Family	3
NURS 742—Advanced Nursing Practice III Adult Health	3
OR	
NURS 743—Advanced Nursing Practice III Psychiatric/Mental Health	3
OR	
NURS 744—Advanced Nursing Practice III Childrearing Family	3
NURS 730—Theoretical Foundations for Change	3
	27
Advanced statistics (a graduate-level statistics course is required)	3
Clinical cognates (physiology or social behavioral course)	3
Electives	5-8
Scholarly paper (thesis)	6
OR	
Professional paper and comprehensive examination	3

Students who select the clinician option may also elect a functional area in administration by completing the following courses in addition to the above program of study:

	Credits
NURS 701—Role of the Nurse Administrator	3
NURS 735—Advanced Nursing Practice II—Nursing Administration	3

Administration Option

Upon completion of the master's program, the graduate will:

1. Practice an advanced administrative nursing role within a theoretically based framework in a selected health care environment.
2. Demonstrate competence in a selected functional area.
3. Use the process and method of scientific inquiry in the study of nursing.
4. Contribute to the development of nursing science.
5. Function as a change agent within a selected health care environment.
6. Acquire a foundation for doctoral study in nursing.

Program of study	*Credits*
NURS 706—Theoretical Foundations of Nursing	3
NURS 701—Role of the Nurse Administrator	3
NURS 721—Clinical Phenomena I	3
NURS 722—Advanced Nursing Practice I Adult Health	3
OR	
NURS 723—Advanced Nursing Practice I Psychiatric/Mental Health	3
OR	
NURS 724—Advanced Nursing Practice I Childrearing Family	3
NURS 735—Practicum in Nursing Administration	3
NURS 720—Research in Nursing	3
NURS 730—Theoretical Foundations for Change	3
NURS 745—Advanced Nursing Practice III Nursing Administration	3
	27
Advanced statistics (a graduate-level statistics course is required)	3
Administrative cognates (B A 720, 721)	6
Electives	2-5
Scholarly paper (thesis)	6
OR	
Professional paper and comprehensive examination	3

Students who select the administration option may also elect a functional area as clinician by completing the following course in addition to the above program of study:

	Credits
NURS 731—Clinical Phenomena II	3
NURS 732—Advanced Nursing Practice II Adult Health	3
OR	
NURS 733—Advanced Nursing Practice II Psychiatric/Mental Health	3
OR	
NURS 734—Advanced Nursing Practice II Childrearing Family	3

Graduate School

Kenneth W. Hunter, Jr., *Associate Vice President for Research and Graduate Dean*

History

Graduate-level training and research is a central part of the life of the University of Nevada, Reno. Post-baccalaureate study has been offered at the university since 1887, and the university awarded its first advanced degree in 1903. The activities of the graduate faculty and students in research and post-baccalaureate scholarship reinforce the land-grant mission of the university.

To fulfill the university's missions in education, research, and public service, the graduate faculty encourages its students to develop the skills of intellectual inquiry and critical analysis. It trains them in both the disciplinary and interdisciplinary skills necessary for problem-solving, and fosters a dedication to creative thought and the search for knowledge.

Advanced Degrees and Majors

Supported by a variety of research centers and institutes, research services and library holdings, the university offers graduate study leading to the advanced degrees of master of arts, master of arts for the teaching of English, master of arts for the teaching of mathematics, master of business administration, master of judicial studies, master of education, master of music, master of public administration, master of science, doctor of education, and doctor of philosophy. In addition, certain professional degrees are granted in engineering, medicine, and mines.

Master's degrees are offered in agricultural economics, animal science, anthropology, atmospheric physics, biochemistry, biology, botany, business administration, cellular and molecular biology, chemistry, civil engineering, computer integrated manufacturing systems engineering, computer science, counseling and educational psychology, economics, educational leadership, electrical engineering, elementary education, English, foreign languages and literatures (French, German, Spanish), geochemistry, geological engineering, geology, geophysics, history, home economics, hydrology and hydrogeology, integrated pest management, journalism, juvenile court judges, land use planning, mathematics, mechanical engineering, metallurgical engineering, mining engineering, music, nursing, nutrition, pharmacology, philosophy, physical education, physics, plant science, political science, psychology, public administration and policy, resource management, secondary education, social work, sociology, special education, speech communication, speech pathology and audiology, teaching of English, teaching of English as a second language, teaching of mathematics, and trial judges.

An educational specialist degree is offered in counseling and educational psychology, curriculum and instruction, and educational leadership.

A combined M.D./Ph.D. degree program is offered with major emphasis in anatomy, biochemistry, cellular and molecular biology, pharmacology, or physiology.

The doctor of education program is offered in counseling and educational psychology, curriculum and instruction, and educational leadership.

The doctor of philosophy degree is offered in anthropology, Basque studies, biochemistry, biology, cellular and molecular biology, chemistry, engineering, English, geochemistry, geology and related earth sciences, geophysics, history, hydrology and hydrogeology, metallurgical engineering, mining engineering, pharmacology, physics, psychology, and social psychology.

Inactive advanced degree programs include the master's in accounting, finance, management, marketing, and theatre; and the doctor of philosophy in political science, and sociology.

Admission to Graduate School

Application Information

An applicant for admission to graduate-level study must file an application with the Office of Admissions and Records. Applications for graduate standing are subject to approval by the chairman of the major department or program, the dean of the college which offers the major, and the dean of the Graduate School.

Applications for admission are accepted at any time of the year, but some programs make decisions on the admission of new students only once or twice a year. To insure timely processing, an application and all credentials should be received in the Office of Admissions and Records by the published filing date that precedes the instructional period in which the applicant plans to take courses.

Except in the MBA program, the minimum prerequisite for admission to graduate standing is 18 credits in the undergraduate major, or at least 18 credits of undergraduate courses acceptable to the department in which the degree is sought. Each academic department reserves the right to specify additional requirements beyond those of the university. If there are deficiences in undergraduate preparation, the department may specify additional work to be done either before admission to graduate standing or while the advanced degree program is being pursued.

Examination Scores

Scores on the Graduate Record Examination (GRE), or the Graduate Management Admission Test (GMAT), or the Medical College Admission Test (MCAT), must be submitted to the Office of Admissions and Records by all applicants. Those who take the GRE examinations are required to take the verbal, quantitative and analytical tests. The GRE or GMAT scores must be no more than five years old to be considered with an Application for Admission. Some departments will admit an applicant to graduate standing before the scores are on file, while other departments will not consider an application until the scores are available. Some departments have

minimum score requirements for admission; others do not. Some departments also require the GRE advanced test in their respective fields. An applicant should contact individual departments to determine department policy.

International Students

Applications from international students are evaluated on an individual basis.

A TOEFL score of 500 or higher is required for admission to the University of Nevada, Reno. Students who have achieved a TOEFL score of 600 or higher are exempt from Intensive English Language Center evaluation. All others must report to the Intensive English Language Center for evaluation and appropriate placement in English language courses. Departments may require TOEFL scores in excess of the minimum requirements.

An international student is required to have a TOEFL score of 550 or higher to be approved for a teaching assistantship.

International applicants must satisfy the medical examination and financial responsibility requirements prior to admission.

University Faculty

University of Nevada, Reno personnel with the rank of instructor or above are not permitted to obtain a graduate degree at this campus.

Graduate Standing

Admission to graduate standing is the first of a series of progression requirements toward an advanced degree and does not constitute admission to candidacy for a higher degree.

Students may be admitted to graduate standing in the Graduate School upon completion of a baccalaureate degree or an advanced degree if they meet the requirements specified. Departments or colleges may have entrance requirements in excess of the minimal requirements of the Graduate School. Prior to submitting an application for admission to graduate studies, a student should contact the department to obtain these requirements in writing.

Each department, with the approval of the academic deans, reserves the right to determine which students are accepted for graduate study, even though the applicant may satisfy the minimal Graduate School requirements. Graduate standing is necessary before a student can pursue an approved program of study for an advanced degree. Admission to graduate standing permits a student to form an advisory-examining committee, to proceed with development and approval of a program of study, and to design a research program for thesis or dissertation.

Master's Programs

A student is eligible for admission to a master's degree program under any of the following conditions:

1. If the undergraduate grade point average is 2.75 or higher on a scale of 4.0, or an average of 3.0 or higher for the courses taken during the last half of the undergraduate program. An international student who is not a University of Nevada, Reno graduate must have a grade point average of 3.0 or higher.
2. If the total grade point average, multiplied by the GRE score (verbal and quantitative), exceeds 2,466. If the GMAT has been taken instead of the GRE, the total grade point average multiplied by the GMAT must be at least 1,436.
3. If the applicant does not meet any of the preceding requirements, admission to graduate standing on a **prescribed program** may be considered. A student enrolled in a prescribed program is ineligible for a teaching or research assistantship.

Doctoral Programs

Upon recommendation from the major department and academic dean, graduates from accredited colleges and universities may be admitted to work toward a Ph.D. or Ed.D. (note exceptions under the Ed.D. section) degree in the Graduate School if they meet the following minimal requirements:

1. An overall GPA of 3.0 or higher on all undergraduate and graduate courses.
2. Satisfactory completion of necessary prerequisites for credits in a chosen major field.
3. An applicant with an overall grade-point average less than 3.0 may apply for admission to a doctoral program with provisional standing. Students approved for provisional standing must complete two consecutive semesters of full-time graduate study in a program approved by the department and the Graduate School. A student may not remain on provisional standing for more than two semesters. Successful completion of the two semesters, with a grade of B or better in each course comprising the 18 credits, qualifies the student to apply for graduate standing. Courses completed while on provisional status may be applied toward an advanced degree with approval of the advisory-examining committee.

Graduate Special

The graduate special classification is for a student who wishes to take graduate courses but does not plan to pursue a program leading to an advanced degree, or for an applicant who does not meet the requirements for admission to graduate standing. An individual may qualify for the graduate special classification by filing official transcripts, or a degree certification form, with the Office of Admissions and Records showing that the applicant has a baccalaureate degree from a regionally accredited four-year college or university. **Admission to graduate special status does not constitute admission to graduate standing in the Graduate School.** With graduate special classification a student may enroll for undergraduate or graduate credit and may satisfy the teacher certification requirements. Admission to graduate special classification does not imply that students may take every course of their choice, as departmental approval must be secured for every course taken. Each student must be able to demonstrate that the prerequisites are satisfied for each course in which enrollment is sought.

A student with graduate special classification may apply for regular graduate standing by meeting the requirements of the Graduate School.

A maximum of nine graduate semester credits taken prior to admission to graduate standing may be applied to the program of study. Those nine credits include graduate special credits and/or transfer credits. Credits earned during the semester a graduate special student is officially admitted to the graduate standing classification are exempt from the nine credit limitation.

An international student who holds a student visa is not eligible for admission to the graduate special classification, and cannot register as a graduate special.

Transfer Credits

Each graduate standing student who intends to apply graduate credit earned at another university toward an advanced degree at the University of Nevada, Reno, must complete a Graduate Credit Transfer Evaluation Request form available in the Office of Admissions and Records. Results of the evaluation of a student's transcript are distributed to the student, adviser, and graduate dean for reference in graduate program planning.

Registration For Graduate Courses

Each student who plans to register for graduate courses must be admitted to graduate standing or graduate special classification at the university *prior* to registration, except certain university seniors as authorized by policy.

Fees

Graduate students are required to pay the application fee, the per credit registration and capital improvement fees, specialized instruction expenses and tuition (for out-of-state students). In addition, there are fees for the Health Service, the Graduate Student Association, the Student Union operating costs and the recreation building use. The summer session fees are as specified in the Fees and Expenses section. Grants-in-aid to cover the per credit and capital improvement fees plus out-of-state tuition may be awarded to graduate assistants, trainees and fellows, provided such conditions are specified in their contracts.

Undergraduate Students and Graduate Courses

An undergraduate student at the university who is within 14 or less credits of completing the requirements for the bachelor's degree may enroll in 500- or 600-level courses for graduate credit, provided that such credit is requested by the student and approved by the adviser and graduate dean at the time of enrollment and provided that the student is scholastically eligible for admission to graduate standing. The student must complete all requirements for the undergraduate degree in the same semester in which registration for the graduate courses occurs; otherwise, the courses revert to undergraduate credit. Undergraduates taking graduate credit may carry a combined load not to exceed the normal credit load in the department in which the student received the baccalaureate degree. Undergraduate students are not eligible to take 700-level courses.

Graduate Assistantships

The Graduate School is administratively responsible for approval of graduate student assistantships. Interested students should check with the appropriate department on the availability of assistantships. A graduate assistantship can only be offered after official admission notification of acceptance to graduate standing is received from the Office of Admissions and Records.

Academic Requirements

Advanced degrees are conferred by the university upon recommendation by the graduate faculty and the graduate dean following the completion of an approved program of study. The approved program of study of each student presents the specific plan of courses, research and related activities of the student. Each kind of advanced degree program has regulations and requirements presented in the description of the degree. The following requirements apply to all graduate programs at the university.

Students must register for an appropriate course load at least one semester or summer session each year, or obtain an *approved leave* from the department. Unless these approved leaves are part of the student's Graduate School records, extensions of the six- and eight-year requirements are not approved by the graduate dean.

Graduate Courses

Courses numbered 500 and above are for graduate credit (see Numbering System) and are open to only those who have been officially admitted to graduate study. A dual numbered course completed at the 400 level for undergraduate credit may not be retaken at the 600 level for graduate credit.

Academic Standards

Graduate students must assume full responsibility for complying with the Graduate School's academic standards and must be aware of the consequences of substandard performance. Departments and graduate faculty are responsible for monitoring and documenting graduate student compliance with academic standards. Penalties for failure to meet standards include the following:

1. Graduate students placed on probation are not eligible for appointments as teaching or research assistants.
2. A student who remains on probation for two consecutive semesters is dropped from graduate standing.

Recommendations by departments or advisory-examining committees to place students on probation or to drop them from graduate standing must be submitted to the Graduate School. If approved, the Graduate School notifies the student of the action and, if appropriate, the Office of Admissions and Records that the student is dropped from graduate standing. A student dropped from graduate standing for reasons other than grade point deficiencies may register as a graduate special.

A student who is dropped from graduate standing because of grade-point deficiencies may enroll as a graduate special student in undergraduate courses. Enrollment in graduate-level courses requires advance written approval of the department concerned and the graduate dean. A student may reapply for graduate standing by removing the existing grade point deficiency and achieving an overall graduate grade point average of 3.0 or higher.

Grades and Credit

Each graduate course must be completed with a grade of C or higher for the credit to be acceptable toward an advanced degree. Some departments, at their discretion, do not accept any grade lower than B for the fulfillment of a graduate program requirement. In addition, a B average or above must be obtained in all graduate credit attempted at the University of

Nevada, Reno. Expiration of the time period for master's degrees does not eliminate course grades from the average, and grades of D or F are included.

Academic Performance

1. University of Nevada, Reno overall graduate credit GPA of 3.0 or above ..... Good standing
2. University of Nevada, Reno overall graduate credit GPA balance of one to six grade points below 3.0 ..... Probation
3. University of Nevada, Reno overall graduate credit GPA balance of seven or more grade points below 3.0 ... Dropped from graduate standing

Limitations on Courses for the Program of Study

A maximum of nine graduate semester credits on the master's degrees, and 24 on the doctor of philosophy degree, from any eligible graduate courses completed prior to admission to graduate standing, may be applied to the program of study.

1. **S/U Grades:** A maximum of three graduate credits for a master's degree (or nine graduate credits for a doctoral degree) of S/U grading, including transfer credits, is acceptable. **A maximum of six graduate credits of S/U grades may apply to the master and doctor of education degrees offered by the College of Education.**
2. **Thesis Credits:** Final credit for thesis or dissertation is not officially recorded until the candidate is approved by the faculty for the graduate degree.
3. **Graduate Special Courses:** A maximum of nine credits for which the student registers while classified as a graduate special student may be used in satisfying requirements for any advanced degree.
4. **Off-Campus Courses:** A maximum of nine credits earned in off-campus courses may be applied toward any advanced degree.
5. **Workshop Courses:** A maximum of six credits of workshop or institute, whether in residence or not, may be included in the total for the degree.
6. **Extension Courses:** Graduate credit earned through extension courses is not accepted for transfer credit.
7. **Correspondence Study:** Graduate credit is not allowed for correspondence study completed at the university or elsewhere.

Resident Credit

Resident credit on the Reno campus is defined as credit earned by a student who is physically present on the Reno campus for the entire duration of the scheduled instruction or training period, except in those specific cases (e.g., in agriculture, geology, or biology) where the field becomes, in fact, a campus laboratory and is the only place where adequate instruction and training can take place.

Student Credit Loads

A full-time graduate student may not register for more than 16 graduate credits in any semester, or more than six graduate credits in any six-week summer session. Registration for graduate assistants is limited to 12 graduate credits per semester.

If the graduate student's registration includes courses taken for undergraduate credit, the student's credit load is calculated on the basis of three undergraduate credits as equivalent to two graduate credits.

Registration in nine graduate credits or more in a semester is considered as full-time. For graduate assistants on a half-time contract, six graduate credits or more constitute full-time study.

To remain in good standing, all graduate students must register for at least one credit each semester until graduation.

Advisory and Examining Committee

An approved application for graduate standing includes the name of the student's temporary adviser. As soon as practical, the student selects a permanent adviser. The permanent adviser and the student arrange for appointment of the advisory/examining committee, who, with the adviser and department chairman, supervise the student's course of study and examinations.

For candidates for the master's degrees, the advisory-examining committee should be appointed as soon as possible. It consists of at least three members of the graduate faculty, two representing the area of specialization and one from the university-at-large. If a major-minor program is elected, there must be one representing the major, one representing the minor, and one from the university-at-large. (In the MBA program the advisory/examining committee is formed only for students in Plan A.)

For a student going directly from the bachelor's degree to the Ph.D., the advisory/examining committee should be formed prior to the completion of 24 credits in graduate courses. For students entering a Ph.D. program with a master's degree, the advisory/examining committee should be formed during the first semester of enrollment. A member of the faculty should be selected to serve as chairman of the committee and as a permanent adviser. The research adviser may be a different faculty member than the chairman. The committee consists of at least five members: 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. Formal approval of a student's advisory/examining committee is made by the graduate dean.

The university-at-large members of committees are to represent the Graduate School, assure compliance to Graduate School regulations and procedures and report to the Graduate School any deviations from prescribed standards. Members of advisory/examining committees must be members of the graduate faculty, unless approved by the graduate dean. A list of university faculty members at the back of this catalog identifies each graduate faculty member by an asterisk following the name.

All committee members are involved in the approval of the student's program and thesis/dissertation topics, and in the design and conduct of all examinations. Changes in the program may be made only with the approval of the entire committee and the graduate dean. When necessary, substitute members of the committee may be appointed by the graduate dean.

Application for an Advanced Degree

During the first two weeks of the student's final semester or Summer Session (check University Calendar for final dates), each candidate for graduation is required to submit an application for an advanced degree to the Graduate School. This ap-

plication includes the expected date of the final examination, date of graduation, and the approval of the adviser, academic dean and the graduate dean. Any applicant who files after this date is charged a late fee. Late applications for advanced degrees are not accepted after February 15, June 15 or October 15 in the respective final period in which graduation is sought.

An applicant who does not complete all the degree requirements by the specified deadline must update and resubmit the application during the next appropriate filing period.

Thesis and Dissertation Regulations

Each student must have an outline (prospectus) of the thesis/dissertation approved by the advisory/examining committee. Subsequent to this approval, a student is expected to complete the thesis/dissertation in a manner satisfactory to the committee.

The candidate should develop the thesis or dissertation while in residence, since close and constant supervision by the director is required. If considerable progress in collecting data, outlining and writing has been made while the student is in residence, the candidate may be permitted to complete the thesis or dissertation away from the campus. Permission to do so first must be arranged with the research adviser and then approved by the graduate dean.

Registration for Thesis or Dissertation: A master's candidate who is on a Plan A thesis program must complete a minimum of six credits of thesis; a Ph.D. candidate must complete a minimum of 24 credits of dissertation. Students should plan to have the required thesis and dissertation credits span the entire academic year, since many benefits (G.I. Bill, student loans and housing, visas, for example), require that a student register for at least one graduate credit during each eligibility semester. Any department may require that a student conducting resident research must register for a minimum of one thesis/dissertation credit each semester.

Thesis and dissertation courses are not graded. At the close of each semester of registration for credit in thesis or dissertation courses, a dash is indicated in place of a letter grade on the student's permanent record. These courses are not counted in GPA computations. After the thesis or dissertation is completed, defended, and accepted by the student's committee and by the graduate dean, credit is posted to the student's academic record.

Dates for Submission of Thesis or Dissertation: A draft of the thesis or dissertation must be submitted to members of the examining committee not later than eight weeks before the final examination to allow time for corrections and suggestions to be incorporated before final typing. The completed, unbound thesis must be submitted to members of the examining committee at least one week before the date of the final examination, which must be held at least three weeks before the close of the semester or term. The final date for submission of the thesis or dissertation in final form is two weeks before the close of the semester or term. NO EXTENSION OF THIS DEADLINE IS PERMITTED. Final approval of theses and dissertations is by the graduate dean.

Format: The thesis or dissertation is to be prepared according to specific directions available at the Graduate School Office. Capitalization, abbreviations, quotations, footnotes, bibliography, and other conventions should conform with good usage as set forth in standard manuals on research writing; practices must be consistent throughout the thesis.

Copies for Deposit: When the thesis has been approved by the advisory/examining committee, two acceptable copies, signed by the chairman of the major department and the thesis director, must be submitted unbound to the Graduate School Office.

Publication and Abstract: The library staff will arrange for microfilming each thesis and dissertation by University Microfilms, Ann Arbor, Michigan. Publication on microfilm does not preclude other forms of publication. The candidate for the Ph.D. must also submit an abstract, not exceeding 350 words in length. The candidate for the master's degree must submit an abstract, not exceeding 150 words in length. All abstracts must be approved by the examining committee. These abstracts are published in full in *Dissertation Abstracts* or *Master's Abstracts*, journals with international circulation. Copyright registration must be paid by the candidate.

Master's Degrees

The university offers the degrees of master of arts, master of arts for the teaching of English, master of arts for the teaching of English as a second language, master of arts for the teaching of mathematics, master of business administration, master of education, master of judicial studies, master of music, master of public administration, master of science and master of social work. Some departments offer only a Plan A, in which a six-credit thesis is required, and other departments offer, in addition to Plan A, a Plan B with no thesis required.

Residence and Credit Requirements

1. **Plan A Requirements:** On the thesis program, at least 30 credits of acceptable graduate courses must be completed, and 21 or more must be earned in on-campus courses at the university. Any transfer of credits from another institution must be recommended in the Program of Study by the committee and officially accepted through the Office of Admissions and Records. At least 18 credits of the program of study must be at the 700 level. Six of the 30 credits must be thesis credits.
2. **Plan B Requirements:** In certain departments a nonthesis degree program may be undertaken. This requires the satisfactory completion of at least 32 credits of acceptable courses and satisfactory completion of a comprehensive examination. A minimum of 23 credits must be earned in on-campus courses at the university. At least 15 of the above 32 credits must be at the 700 level.
3. **S/U Grades:** A maximum of three credits of S/U grades, including transfer credits, is acceptable.
4. **Limits on Transfer and Graduate Special Credits:** A maximum of nine graduate credits completed prior to admission to graduate standing may be applied toward the master's degree.
5. **Time Limit:** All requirements for the master's degree must be satisfied within the period of six calendar years immediately preceding the granting of the degree.

6. **Second Master's Degree:** A maximum of nine graduate credits earned in a master's degree program may later be applied toward a second master's degree.

Course Requirements

For the M.A., M.A.T.E., M.B.A., M.M., M.P.A., or M.S. degree, the following types of programs may be arranged:

Major Programs: A minor is not required. In Plan A at least 18 of the 24 graduate credits must be in the major field of study and in Plan B, 23 of the 32 graduate credits must be in the major field of study. The credits may be elected in any department with approval by the advisory committee.

Major-Minor Programs: In Plan A at least 12 of the 24 graduate credits must be in a major field of study, with at least six credits in a minor field. The minor may be in a different department, or it may be in a second division of the major department. 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 with approval by the advisory committee. Normally these credits are chosen to support the candidate's thesis. In Plan B at least 15 of the 32 graduate credits must be in a major field of study, with at least eight credits in a minor field.

Area Programs: An advisory committee with the approval of the dean of the Graduate School may designate an area program which embraces the subject matter of several departments.

Education Programs: For the master of arts or master of science in secondary education, the Plan A program must include a minor field of study of at least eight credits in a subject-matter department in a department outside the College of Education, while in Plan B 10 credits are required.

Foreign Language Requirement: The Graduate School does not have a language requirement for master's degrees, but any department may require foreign language competencies.

Procedures Toward Master's Degree

During the first semester of enrollment and prior to establishment of the advisory/examining committee, the courses to be taken must be approved by the faculty adviser identified on the admissions certificate.

Program of Study: The graduate student's adviser, the department head, and the advisory/examining committee determine the program of studies for each master's degree candidate, including the thesis and the courses acceptable toward the graduate degree program. The program of study documents by title and number all the courses to be completed in fulfilling requirements for the graduate degree. Final approval is by the graduate dean. Subsequent changes may be made at any time, but only with the approval of the committee and the graduate dean.

It is the responsibility of the student and the advisory/examining committee to insure that the graduate courses in the proposed program of study are consistent with the requirements of the Graduate School and the department. (The Master of Business Administration program does not use the usual committee structure. For details, please see the section of this Catalog on graduate programs in the College of Business Administration.)

The student should understand that attaining a graduate degree involves more than the completion of a prescribed number of credits. The student's advisory/examining committee may require a student to take additional courses if, in its opinion, additional training is needed to achieve the level of proficiency expected of one who holds the advanced degree. Students should consult the requirements of individual departments to learn details for completing the master's degree either through Plan A (with a thesis) or Plan B (without a thesis).

Comprehensive Examination: Comprehensive examinations are designed to assure the faculty that the student has attained a reasonable level of proficiency and understanding in the chosen field of study. At the master's level, the examinations are administered by the department after most of the course work is completed. In consultation with the major adviser, the student registers for the comprehensive examination without credit on a satisfactory/unsatisfactory basis. All committee members may review the examination. The comprehensive examination must be completed satisfactorily before the student files for candidacy. Unless a grade of Unsatisfactory (U) or Incomplete (I) is changed to Satisfactory (S) during the subsequent semester, the student will be removed from graduate standing.

Admission to Candidacy: Advancement to candidacy confirms that a student has successfully completed departmental course requirements, university residency, and GRE/GMAT requirements. A master's degree student should file for candidacy after completion of the comprehensive examination and doctoral students should file for candidacy not later than eight months prior to graduation. Forms are available in the Graduate Office and require approval of the adviser, chairman of the major department, and the dean of the Graduate School. Admission to candidacy requires each student to have:

1. A B average or higher in all graduate work.
2. Formal approval of the advisory committee for the program of study, including the approach to the thesis.
3. Submitted scores for the Graduate Record Examination or the Graduate Management Admission Test.

A department may, at its discretion, impose additional requirements for admission to candidacy.

Final Oral Examinations

Many departments require a final oral examination of each master's degree candidate. Students should consult departmental guidelines for details.

Individual departments impose explicit regulations when a student's performance is not satisfactory on the final oral examination. An advisory/examining committee may allow the student to retake the examination, it may recommend that the student be placed on probation, or it may recommend that the student be dropped from graduate standing. These recommendations are made to the graduate dean. Additional information on specialized master's degree programs are published in the department/college sections of this catalog.

Doctor of Philosophy (Ph.D.) Degree

The doctor of philosophy (Ph.D.) degree is conferred for work of distinction in which the student displays original scholarship and achievement.

A student must exhibit evidence of mastery of a rather broad major field by passing a general examination. After that the student applies for admission to candidacy. A student must also prove ability to design and complete a program of original research by preparing a dissertation that adds to existing knowledge.

Residence and Credit Requirements

Time Limitation: All requirements for the doctoral program, excluding prerequisite graduate coursework or prerequisite master's degrees, must be completed within a period of eight calendar years. The prerequisites required are explicitly defined by the departments concerned, and approved by the graduate council.

Residence: A minimum of six semesters of graduate study beyond the bachelor's degree is required. At least two successive semesters, excluding summer sessions, must be spent in full-time residence on campus at the University of Nevada, Reno.

Credits: A minimum of 72 graduate credits is required of which at least 48 must be in course work.

A maximum of 24 credits in course work with grades of B or better from a master's degree program or previous post-baccalaureate graduate studies program may be allowed toward the Ph.D. degree, with the approval of the major department, the graduate dean, and the Office of Admissions and Records.

700-Level Courses: A minimum of 30 credits of 700-level courses beyond the baccalaureate, exclusive of dissertation credits, is required for the doctoral degree. A maximum of 18 of these credits may be used from a master's degree.

Course Requirements

With advance approval of the advisory committee, the following types of Ph.D. programs may be arranged.

Major Programs: Major programs may be completed without a minor. In some cases, elective courses may be taken outside the major.

Major-Minor Programs: At least two-thirds of the credits, including dissertation research, must be taken in the major field. A minor field, if selected, must be approved by the department offering the minor.

Area Programs: An advisory committee consisting of members of several departments, with the approval of the dean of the Graduate School, may designate an area program which embraces the related subject matter of several departments.

Procedures Toward Ph.D. Degree

Qualifying Examinations: The qualifying exam aids in the assessment of the student's current knowledge and defines the departmental requirements still to be completed. Each department will provide explicit guidelines to its students. For the student entering the Ph.D. program without a master's degree, qualifying examinations are to be completed prior to the completion of 24 graduate credits; for the student entering with the master's degree, the exams are to be completed during the first semester of graduate study.

Program of Study: As soon as practical after its appointment, the advisory/examining committee should meet to approve the student's program of study and the prospectus for the dissertation, following the same procedures as those outlined for master's degree candidates (see above).

Final acceptance of a student's program of study must be made by the examining/advisory committee prior to the student's filing for candidacy. The student's advisory committee may accept or reject any course or other work the committee deems appropriate or inappropriate to the student's program.

Foreign Language Requirement: Individual departments, programs, schools, or colleges may require competency in one or more foreign languages as part of the degree requirements for a doctorate. Students should consult individual departments for details.

Comprehensive Examination: This examination should be taken as soon as possible after completion of any language and all course requirements, but no later than eight calendar months before the date of graduation. It may be taken after a minimum of 75 percent of the student's required course work beyond the bachelor's degree is completed. This examination must be oral and written, and test the student's mastery of a broad field of knowledge, not merely the formal course work which has been completed.

The written examination is designed and administered by the department of the major, and the oral examination is conducted and evaluated by the advisory/examining committee.

If more than one negative committee vote is cast, the examination is failed. In case of failure, the examination may be retaken once, provided the examining board feels that additional study is justified and the student continues such studies for an additional period as determined by the committee.

Candidacy: Application for admission to candidacy must be filed not later than eight calendar months before awarding of the degree, and not before completion of residence requirements, the comprehensive examination, any remaining G.R.E. requirements, and the foreign language requirements.

The Dissertation: Candidates for the Ph.D. degree must register for at least 24 credits of dissertation work and must submit a dissertation satisfactory to the examining committee. Any exception to the minimum 24 dissertation credits requires the advance written approval of the department of the major and the graduate dean. The dissertation must represent original and independent investigation which is a contribution to knowledge. It should reflect not only a mastery of research techniques, but also the ability to select an important problem for the investigation, study it competently, and express the findings in an acceptable manner. Final approval of the dissertation is by the graduate dean.

Additional information about the Ed. D. and professional degrees are published in the relevant department/college sections of this catalog.

Special Services

Special services provided by the Graduate School include:

Statistical consulting: For graduate students and faculty, a statistical consulting service is available to help with research and proposal development.

Assistance in proposal writing: Through the Getchell Library Learning Laboratory, the Graduate School makes available "Winning Grants," a series of 10 audio-visual lectures dealing with all aspects of developing proposals and contracts to potential sponsors.

Graduate School Instructional Development (GSID): The Graduate School provides special training for both national and international teaching assistants in various aspects relating to teaching skills.

Graduate Student Paper Competition: During the spring semester of each year, the Graduate School coordinates the "Graduate Student Paper Competition," a program sponsored by the Honor Society of Phi Kappa Phi, the Research Society of Sigma Xi, and the Graduate Student Association. Each applicant submits a scholarly research document. Then finalists are invited to give oral presentations of their research findings. Cash prizes are awarded to the winners.

Graduate Teaching Fellow Award: Nominations for the outstanding graduate teaching fellow on campus are made by individual departments at the beginning of spring semester each year. Each nominee must be serving in his or her second year as a graduate teaching fellow at the University of Nevada, Reno and must have completed at least 20 credits of graduate work. Before the award is made, student teaching evaluations are scrutinized and finalists are observed in their classrooms.

Graduate Student Association: Graduate student participation in university affairs is encouraged through the University of Nevada, Reno Graduate Student Association (GSA). The approval of a new GSA constitution in 1978 provides apportioned graduate student representation from each academic unit offering advanced degree programming. The GSA has voting representation on the Graduate Council and cooperates with the Associated Students of the University of Nevada (ASUN). The GSA president attends University of Nevada System (UNS) Board of Regents meetings. While social activities are provided by the GSA, the major emphasis is placed on improving academic and service programs relating to the specific needs of graduate students. The GSA publishes the Graduate Student Handbook, sponsors invited speakers on a wide variety of topics, helps fund graduate students who present papers at professional meetings, and promotes graduate student participation in campus and community affairs as well as regional and national scholarly meetings.

Course Information

The assigned letter or number following the departmental designation indicates the appropriate level of instruction for each course:

A,B,C, etc., are special noncredit courses.
1-99 are nonbaccalaureate-level courses.
100-199 are freshman courses.
200-299 are sophomore courses.
300-399 are junior courses.
400-499 are senior courses.
500-599 are graduate courses.
600-699 are graduate courses. Some are dual listed with 400-level courses having a graduate component.
700-799 are graduate courses.

NOTE: Each student is personally responsible for registration in the correct course number and class level as approved by the faculty adviser.

Symbols

An interpretation of the symbols which appear in the course listings follows:

a, b, c, etc. indicate successive terms of the same course which may be repeated for credit.

(3 + 0), (1 + 6), etc. show the number of 50-minute class periods of lecture (or recitation or discussion) plus the total number of periods of laboratory (or workshop or studio) per week. The number of class periods is not necessarily the same as the number of times the class meets. Thus (3 + 0) means the course meets for three periods of lecture per week and does not have any laboratory periods. Likewise, (1 + 6) means the course meets for one period of lecture and six periods of laboratory per week; the laboratory may meet twice a week for three periods each or three times a week for two periods each. For more specific information about a particular course, the student should consult the schedule of classes.

1, 2, etc. credits which appear after the parenthesis indicate the number of credits the course carries each semester.

S/U (in italics) means the course is graded Satisfactory or Unsatisfactory only.

Abbreviations

A SC—Animal Science
ACC—Accounting
AGEC—Agricultural Economics
AGED—Agricultural Education and Communications
AGRO—Agronomy
ANAT—Anatomy
ANTH—Anthropology
ART—Art
B A—Business Administration
B CH—Biochemistry
B V—Beliefs and Values
BASQ—Basque
BIOL—Biology
C E—Civil Engineering
C I—Curriculum and Instruction
C J—Criminal Justice
C S—Computer Science
CEP—Counseling and Educational Psychology
CH E—Chemical Engineering
CHEM—Chemistry
CHS—Community Health Sciences
CIS—Computer Information Systems
CLS—Clinical Laboratory Science
CMB—Cell and Molecular Biology
E E—Electrical Engineering and Computer Science
E L—Educational Leadership
E S—Ethnic Studies
EC—Economics
ENGL—English
ENGR—Engineering
ENV—Environment
FCM—Family and Community Medicine
FLL—Foreign Languages and Literatures
FR—French
G E—Geological Engineering
GEOG—Geography
GEOL—Geology
GER—German
GK—Greek
H P—Historic Preservation
HCS—Human and Community Sciences
HDFS—Human Development and Family Studies
HIST—History
HON—Honors Program
HORT—Horticulture
IMED—Internal Medicine
INTD—Interior Design
IPM—Integrated Pest Management
ITAL—Italian
JAPN—Japanese
JOUR—Journalism
J S—Judicial Studies
LAT—Latin
L SC—Library Science
M E—Mechanical Engineering
MATH—Mathematics
MED—Medicine
METE—Metallurgical Engineering
MGRS—Managerial Sciences
MICR—Microbiology
MIL—Military Science
MINE—Mining Engineering
MUS—Music
NURS—Nursing
NUTR—Nutrition
OBGY—Obstetrics and Gynecology
P SC—Political Science
PATH—Pathology and Laboratory Medicine
PCHY—Psychiatry and Behavioral Sciences
PEDI—Pediatrics
PHAR—Pharmacology
PHIL—Philosophy
PHSY—Physiology
PHYS—Physics
PSY—Psychology
R ST—Religious Studies
RPED—Recreation, Physical Education and Dance
RUSS—Russian
RWF—Range, Wildlife, and Forestry
S W—Social Work
SHR—Social and Health Resources
SOC—Sociology
SPA—Speech Pathology and Audiology
SPAN—Spanish
SPCM—Speech Communication
SURG—Surgery
TAM—Textile and Apparel Merchandising
THTR—Theatre
V M—Veterinary Medicine
W S—Women's Studies
W T—Western Tradition

Course Offerings

Prerequisites

The prerequisites listed for each course must be satisfied prior to registration, or the advanced approval of the department offering the course must be obtained, for enrollment to be valid.

Inactive Courses

Certain courses are approved for offering as the need arises but due to their infrequent scheduling are listed as being inactive. Individuals desiring specific information about any inactive course should contact the chair of the department.

Changes

All courses are subject to change without advance public notice. In addition, the university reserves the right to cancel or limit enrollment in any scheduled class.

ACCOUNTING (ACC)

201 INTRODUCTORY ACCOUNTING I (3 + 0) 3 credits
Purpose and nature of accounting, measuring business income, accounting principles, assets and equity accounting for external financial reporting.

202 INTRODUCTORY ACCOUNTING II (3 + 0) 3 credits
Forms of business organization; cost concepts and decision making; break-even analysis, fixed and variable costs, budgeting for internal reporting. Prerequisite: ACC 201.

UPPER-DIVISION COURSES: Business students must have satisfactorily completed the entire lower-division business core and CIS 203. (See section on *Upper-Division Courses* in the College of Business Administration section.)

303 INTERMEDIATE ACCOUNTING I (3 + 0) 3 credits
Theory and practice of accounting for cash, receivables, prepaid and accrued items, plant and equipment, intangible assets.

304 INTERMEDIATE ACCOUNTING II (3 + 0) 3 credits
Shareholder's equity, dilutive securities, and investments; issues related to income determination, preparation and analysis of financial statements. Prerequisite: ACC 303.

307 GOVERNMENTAL ACCOUNTING (3 + 0) 3 credits
Fund and budget accounts of local governmental units, revenues, appropriations, disbursements, assessments, university, hospital and other fund applications.

309 MANAGEMENT ACCOUNTING I (3 + 0) 3 credits
Cost analysis applied to decision-making. Materials, labor and overhead, relevant cost, joint and by-products, job order and process costing, budgeting and standard costs.

311 AUDITING I (3 + 0) 3 credits
Auditor's standards and legal responsibilities; statistical sampling and evidence gathering, internal control and audit programs for assets, liabilities, revenue and expenses; preparation of audit reports. Prerequisite or corequisite: ACC 304.

313 FEDERAL TAX ACCOUNTING I (3 + 0) 3 credits
General concepts of federal income taxation, including research methods and planning techniques, with emphasis upon application to individuals as employees and proprietors.

395-396 INTERNSHIP IN ACCOUNTING 1 to 3 credits each *S/U only*
Cooperative education wherein students apply knowledge to real situations in program developed by company official and faculty adviser to optimize learning experiences. Term paper required. Prerequisite: first semester seniors only.

405, 605 ADVANCED ACCOUNTING (3 + 0) 3 credits
Partnerships, joint ventures, installment sales, consignments, receiverships, estates, trusts, home office and branch, consolidated statements, actuarial science. Prerequisite: ACC 304.

410, 610 MANAGEMENT ACCOUNTING II (3 + 0) 3 credits
Continuation of cost accounting concepts; nonmanufacturing costs, relevant costs, inventory valuation, joint and by-products and capital budgeting. Prerequisite: ACC 309.

414, 614 FEDERAL TAX ACCOUNTING II (3 + 0) 3 credits
Survey of income tax principles governing the formation and operation of corporations, partnerships and S-corporations, including liquidating and nonliquidating distributions. Prerequisite: ACC 313.

420, 620 INTERNATIONAL ACCOUNTING (3 + 0) 3 credits
Emphasis on comparative financial reporting systems and managerial reporting problems of multi-national firms. Course fulfills accounting elective or international requirements, but not both. Prerequisite: ACC 304.

424, 624 COMPUTER-BASED AUDITING (3 + 0) 3 credits
Develop control techniques for security and integrity of computer systems and analyze computer audit methods for compliance and substantive testing in batch and online systems. Prerequisite or corequisite: ACC 480 or CIS 461.

470, 670 TAX PLANNING AND RESEARCH (3 + 0) 3 credits
Thorough analysis of the process of tax research. Tax planning concepts through the medium of problem-oriented investigation. Extensive use of library materials. Topical matter will be selected from relevant contemporary issues. Prerequisite: ACC 313, 314.

480, 680 ACCOUNTING SYSTEMS AND AUTOMATION (3 + 0) 3 credits
Accounting information systems with an emphasis on the computer's role in these systems. Topics include data bases, computerized control systems, computer crime and systems study work for a systems revision. Prerequisite: ACC 304, 309, 311, 313.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

493, 693 ACCOUNTING THEORY (3 + 0) 3 credits
Review of accounting literature and contemporary accounting problems. Emphasis placed on the development of basic accounting concepts. Prerequisite: ACC 304.

494, 694 SPECIAL TOPICS (3 + 0) 3 credits
Selected contemporary topics in the discipline of accounting.

Inactive Courses

412, 612 AUDITING II (3 + 0) 3 credits
491, 691 CPA PROBLEMS I (3 + 0) 3 credits

AGRICULTURAL ECONOMICS (AGEC)

100 AGRICULTURE AND RESOURCES IN THE ECONOMY (3 + 0) 3 credits
Economic principles related to agricultural and natural resources. Topics: price determination, emphasizing demand; price searching and taking; sources of and prescriptions for fluctuating economy.

202 AGRICULTURAL AND RESOURCE ECONOMICS (3 + 0) 3 credits
Production principles affecting the allocation of scarce agricultural and renewable resources by individual firms and implications for aggregate supply and resulting price determination.

211 AGRIBUSINESS ANALYSIS (2 + 2) 3 credits
Use of financial records in planning and analyzing business records.

213 MICROCOMPUTERS IN AGRIBUSINESS (2 + 3) 3 credits
Introduction to the use of microcomputers. Emphasizes use of word processing, spreadsheets, and data management.

270 INTRODUCTION TO STATISTICS (3 + 3) 4 credits
Principles of statistics and application to the fields of agriculture and life sciences.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in agricultural and resource economics.

310 PRODUCTION ECONOMICS (3 + 0) 3 credits
Application of techniques and principles of economics to the problems of production of goods and services. Prerequisite: microeconomics.

312 INTERMEDIATE MICROCOMPUTER COMMUNICATIONS (1 + 0) 1 credit
Applications of communications software and word processing. Prerequisite: AGEC 213.

313 INTERMEDIATE APPLICATIONS OF SPREADSHEETS (1 + 3) 2 credits
Use of electronic spreadsheets with applications to financial and production business records. Prerequisite: AGEC 213.

314 INTERMEDIATE DATA BASE MANAGEMENT (1 + 3) 2 credits
Use of data base management software with applications to financial and production records. Prerequisite: AGEC 213.

315 AGRIBUSINESS FINANCE (3 + 0) 3 credits
Principles of finance for management of agribusiness enterprises. Financial analysis, planning and forecasting and decisions involving capital assets. Prerequisite: microeconomics.

316, 416 INTERNSHIP 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

322 COMMODITY FUTURES MARKET (3 + 0) 3 credits
Activities of commodity futures exchanges, mechanics of trading, hedging and forward pricing; analysis of commodity prices; regulation of trading. Prerequisite: EC 102 or AGEC 202.

332 AGRICULTURAL ECONOMICS POLICY (3 + 0) 3 credits
Agricultural economic policy in the U.S. Review of past and present policies and evaluation of these policies. Prerequisite: AGEC 202 or EC 102.

350 QUANTITTATIVE MODELING FOR AGRIBUSINESS ANALYSIS (3 + 0) 3 credits
Quantitative methods and models for analyzing resource allocation problems in agricultural economics. Prerequisite: MATH 211.

364 ECONOMICS OF OUTDOOR RECREATION (2 + 2) 3 credits
Application of economic principles to outdoor recreation problems and policies. Prerequisite: AGEC 202 or EC 102.

386 AGRIBUSINESS FIELD TRIP (0 to 3 + 6) 1 to 2 credits *S/U only*
Tours of agribusiness enterprises in Nevada or California. A one-week field trip during spring break to observe the management and marketing practices used in successful operations of different agribusiness structures. May be repeated once. Paper required for 2 credits. Prerequisite: AGEC 202 or EC 102.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest in agricultural and resource economics.

411, 611 AGRIBUSINESS DECISION ANALYSIS (2 + 3) 3 credits
Case study problems related to agribusiness, ranching and farming will be used to study methodologies of decision analysis. Linear programming and risk analysis will be introduced. Prerequisite: AGEC 211, 213 or equivalent.

425 AGRIBUSINESS MARKETING (3 + 0) 3 credits
Concepts of marketing agricultural food and fiber products. Applications of marketing principles and forecasting emphasizing food and fiber products of local, regional, and national importance. Prerequisite: microeconomics.

428 INTERNATIONAL AGRICULTURAL MARKETING (3 + 0) 3 credits
Discussion of international trade as it impacts U.S. agriculture. Review U.S. and foreign policies that affect trade and consequential impact on prices of domestic commodities. Prerequisite: AGEC 202.

460, 660 AGRICULTURE AND ECONOMICS OF DEVELOPMENT (3 + 0) 3 credits
Topic areas include growth models, the role of agriculture in regional or national economies, factor markets, macro and trade policies, natural resources and planning techniques. Prerequisite: AGEC 202; EC 102 or SOC 101.

463, 663 DISCRETE SYSTEMS SIMULATION (3 + 0) 3 credits
Analysis of discrete-event systems via computer simulation models. Emphasis on model building and the design and analysis of simulation experiments for complex systems. Prerequisite: CIS 250 or equivalent.

466, 666 NATURAL RESOURCE AND ENVIRONMENTAL ECONOMICS (3 + 0) 3 credits
Emphasizes interrelations of economics principles and institutional factors affecting use and value of natural resources. Attention given to special problems of land, water, and environment. Prerequisite: AGEC 202 or EC 102.

470, 670 INTERMEDIATE STATISTICAL METHODS (3 + 0) 3 credits
Statistical topics including analysis of variance, simple and multiple regression and analysis of enumeration statistics. Emphasizes selection and application of statistical methods to realistic problems. Computers used to assist in statistical analyses. Prerequisite: one course in statistics.

472, 672 REGIONAL ECONOMIC ANALYSIS (3 + 0) 3 credits
(See EC 472 for description.)

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in agricultural and resource economics.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations and developments in agricultural and resource economics. Includes the areas of marketing, production, economics, regional development, resource development and recreation economics. Maximum of 6 credits.

705 ADVANCED STATISTICAL ANALYSIS (2 + 2) 3 credits
Advanced analysis of variance and covariance, multiple and curvilinear regression, nonparametric statistics and sampling finite populations. Emphasis is given to computer applications. Prerequisite: statistics course.

710 ADVANCED AGRICULTURAL PRODUCTION ECONOMICS (3 + 0) 3 credits
Production principles applied to allocation of land, labor, capital and management in agriculture. Prerequisite: AGEC 310.

720 AGRICULTURAL PRICES AND MARKETS (3 + 0) 3 credits
Examination of alternative market structures and determination of agricultural product prices. Prerequisite: AGEC 421.

730 ADVANCED AGRICULTURAL ECONOMIC POLICY (3 + 0) 3 credits
Analysis of the effects of alternative economic policies on production, resource allocation and welfare in the agricultural sector. Prerequisite: AGEC 332.

740 RESEARCH METHODOLOGY (1 + 0) 1 credit
Scientific method applied to research in agricultural economics. Survey of various schools of thought concerning use of economic theory and methods of measurement in research. Prerequisite: AGEC 310.

750 QUANTITTATIVE METHODS IN AGRICULTURAL RESOURCE ECONOMICS (3 + 0) 3 credits
Application of quantitative methods such as mathematical programming, Markov processes and simulation to problems in agriculture, natural resources and rural development. The computer is used to solve problems encountered by resource managers and administrators.

755 EXPERIMENTAL DESIGN (1 + 2) 2 credits
Advanced techniques of statistical inference. Design and analysis of experiments in agriculture and related fields and use of computer programming in statistical analysis. Prerequisite: statistics course.

760 ADVANCED NATURAL RESOURCES ECONOMICS (3 + 0) 3 credits
Applications of economic principles to natural resource development, use, conservation and policy. Prerequisite: EC 321

790 SEMINAR (1 to 3 + 0) 1 to 3 credits
Research work and reports on topics of interest in agricultural and resource economics.

793 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in agricultural and resource economics. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Required of all graduate students who wish to complete the master of science degree under Plan B.

797 THESIS 1 to 6 credits

798 INTERNSHIP 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

AGRICULTURAL EDUCATION AND COMMUNICATIONS (AGED)

All students taking laboratory courses are required to furnish their own safety glasses to meet O.S.H.A. requirements.

100 FUNDAMENTALS OF AGRICULTURAL AND EXTENSION EDUCATION (3 + 0) 3 credits

Introduction into methods and materials used in information transfer including vocational agriculture instruction and agricultural extension. Topics include historical development, current programs and trends.

105 AGRICULTURAL AND DOMESTIC STRUCTURES (2 + 3) 3 credits
Survey of integral components. Theory and operational analysis of structural, electrical, sanitation and environmental subsystems. No mechanical experience necessary.

110 WOODWORKING PRINCIPLES AND TECHNOLOGY (2 + 3) 3 credits
Fundamental principles and processes of woodworking. Emphasizes techniques used in design and fabrication of wood products.

115 SMALL EQUIPMENT MAINTENANCE (2 + 3) 3 credits
Familiarization with care, operation and maintenance of mechanical and electrical equipment used in rural and urban activities. Student must furnish engine.

153 AGRICULTURAL POWER TECHNOLOGY (2 + 3) 3 credits
Principles of management of power sources used in the agriculture industry. Principles of power transfer, hydraulics, pneumatics, efficiencies, diagnostics, and machine capabilities. Prerequisite: MATH 115.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

312 METALLURGICAL PRINCIPLES AND WELDING TECHNOLOGY (2 + 3) 3 credits
Current techniques and equipment in working metals. Properties of metals, welding and metal working processes, metals testing procedures, environmental and facilities management. Prerequisite: MATH 115.

331 TILLAGE AND PLANTING MACHINERY (2 + 3) 3 credits
Principles of operation, preventive maintenance, adjustment and repair of farm tractors, planters, primary and secondary tillage equipment and sprayers. Prerequisite: MATH 110.

332 HARVESTING MACHINERY (2 + 3) 3 credits
Principles of operation, preventive maintenance, adjustment and repair of farm tractors, hay and forage harvesting machinery and combines. Prerequisite: MATH 110.

333 MACHINE DESIGN TECHNOLOGY (2 + 3) 3 credits
Functional design and principles to create equipment and machinery. Incorporates principles of technology and systems management to design and fabricate equipment used in industry. Prerequisite: MATH 115.

341 AGRICULTURAL STRUCTURES (2 + 3) 3 credits
Building materials, planning structures, concrete forms, placement and finishing concrete block construction; framing and pole construction, roof structures and painting relative to agricultural structures. Prerequisite: MATH 110.

342 YOUTH PROGRAMS (1 to 3 + 0) 1 to 3 credits *S/U only*
Plan, conduct and evaluate the F.F.A. state contests and convention. Maximum of 6 credits.

353 AGRICULTURAL POWER TECHNOLOGY (2 + 3) 3 credits
Principles of management of power sources used in the agriculture industry. Principles of power transfer, hydraulics, pneumatics, efficiencies, diagnostics, and machine capabilities. Prerequisite: MATH 115.

356 ELECTRICAL POWER AND PROCESSING (2 + 3) 3 credits
Generation and distribution of electrical power including motors, circuits, controls, sensors materials, processes, and safety. Prerequisite: MATH 115.

360 EXTENSION PROGRAMS IN AGRICULTURE AND HOME ECONOMICS (2 + 0) 2 credits
Principles and practice in methods used for cooperative extension work. History, organization and philosophy of extension service. Prerequisite: junior standing in agriculture or home economics.

370 CROP HANDLING AND STORAGE FACILITIES (2 + 3) 3 credits
Design and construction of handling and storage facilities for grain, hay and forage crops. Prerequisite: MATH 110.

371 LIVESTOCK FACILITIES (2 + 3) 3 credits
Design and construction of livestock and dairy facilities including barns, corrals, fences, as well as farmstead and ranch planning. Prerequisite: MATH 110.

410 AGRICULTURAL LAW (3 + 0) 3 credits
Examination of more important applications of laws and regulations in management of operations of farms and ranches and the agribusiness firms. Prerequisite: junior standing.

446, 646 PROGRAM DEVELOPMENT IN AGRICULTURAL AND EXTENSION EDUCATION (3 + 0) 3 credits
Youth groups, leadership training, supervised farming and cooperative work experience programs, advisory councils and community surveys for program development. Prerequisite: junior standing.

447 METHODS IN TEACHING VOCATIONAL AGRICULTURE (3 + 0) 3 credits
Course construction for all day, young and adult farmer classes; preparation of teaching plans, reports, organization and evaluation of a vocational agriculture department.

458 SUPERVISED EXTENSION EXPERIENCE (0 + 2 per credit) 1 to 8 credits
Provides opportunities for senior-level agricultural students in on-site training and work with the Nevada Cooperative Extension Service.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations, and developments in (a) agricultural and vocational education, (b) agricultural mechanics. Maximum of 6 credits.

497, 697 COOPERATIVE VOCATIONAL EDUCATION PROGRAMS (3 + 0) 3 credits
The role of cooperative vocational programs, organization, and implementation. Prerequisite: AGED 230.

605 VOCATIONAL SAFETY TEACHING STRATEGIES (1 + 0) 1 credit
Philosophical and applied investigation of the teaching strategies for safety education programs in vocational education.

720 ADVANCED METHODOLOGY IN VOCATIONAL EDUCATION (3 + 0) 3 credits
Theoretical and applied study of teaching strategies in vocational education.

750 WORKSHOP IN AGRICULTURAL EDUCATION (1 + 0 per credit) 1 to 6 credits
Intensive study of a technical phase of (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

760 EXTENSION PROGRAM ANALYSIS (2 + 0) 2 credits
Analysis and development of cooperative extension programs in agriculture, home economics and rural areas development. Prerequisite: graduate standing in agriculture or home economcis.

763 INTERNSHIP IN CURRICULUM AND INSTRUCTION (0 + 2 per credit) 3 to 6 credits
(See C I 750 for description.)

793 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

Inactive Courses

381 MACHINE TOOL OPERATION (2 + 3) 3 credits
400 SEMINAR (1 + 0) 1 credit
700 SEMINAR (1 to 3 + 0) 1 to 3 credits

AGRONOMY (AGRO)

100 PRINCIPLES OF PLANT-SOIL-WATER RESOURCE USE (3 + 0) 3 credits
Introduction to plant, soil and water resources of the world. Use of these resources for the benefit of man.

204 PRINCIPLES OF PLANT PRODUCTION (2 + 3) 3 credits
Principles underlying the creation and maintenance of a favorable environment for efficient production of plants. Prerequisite: BIOL 202.

205 PRINCIPLES OF PLANT PRODUCTION IN URBAN ENVIRONMENTS (3 + 0) 1 to 3 credits
Fundamental principles applied to the production and maintenance of plant material in modified urban environments. Topics include soil modification, species selection, water management, and pest control.

222 SOILS (3 + 3) 4 credits
Physical, chemical and biological properties of soils, soil genesis and classification, plant-soil-water relations. Prerequisite: CHEM 101, 102 or 104.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

327 SOIL FERTILITY AND MANAGEMENT (3 + 0) 3 credits
Soil as medium for plant growth, essential elements, fertilizers and their use, amendments, salinity, soil fertility evaluation, cropping systems and soil management. Prerequisite: AGRO 222, CHEM 142.

344 IRRIGATION PRINCIPLES AND PRACTICES (3 + 0 or 3) 3 or 4 credits
Principals and practices underlying efficient use of water in irrigation, irrigation methods, land preparation, salinity, etc. Laboratory optional. Prerequisite: AGRO 222.

355 FORAGE CROPS (2 + 3) 3 credits
Physiological bases for management of forage crops. Quality and utilization of forages. Greenhouse or laboratory problems relating to production of forages. Identification of important forage seeds and plants. Prerequisite: BIOL 202.

357 CEREAL CROPS (2 + 3) 3 credits
Physiological basis for management of cereal crops. Quality and utilization of cereals. Greenhouse or laboratory problems relating to production of cereals. Identification of important cereal seeds and plants. Prerequisite: BIOL 202.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

406, 606 PLANT BREEDING (2 + 3) 3 credits
Methods of plant breeding and their application to various crops. Prerequisite: BIOL 290.

412, 612 ADVANCED PLANT PRODUCTION (2 + 3) 3 credits
Cultural practices and related physiological processes of economic crop growth and development. Physical, chemical and environmental control of crop production. Prerequisite: AGRO 204, BIOL 355, or B CH 412.

431, 631 BIOCLIMATOLOGY (3 + 0) 3 credits
Elements of climatology and microclimatology in relation to living organisms. Effects of man's actions on bioclimates. Equipment for bioclimatic investigations and methods of data summarization and interpretation. Prerequisite: MATH 110 or equivalent.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in bioclimatology, soils, crop production and water science.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations and developments. Includes areas of bioclimatology, crop science, drainage, irrigation, plant breeding or soil science. Maximum of 6 credits.

702 SOIL CHEMISTRY (2 + 3) 3 credits
(See RWF 702 for description.)

715 PLANT WATER RELATIONS (2 + 0) 2 credits
Integrated study of the role of water in plants in relation to their environment. Topics include soil water, root systems, water and salt absorption, and movement in plants, transpiration, effects of water deficits on plants and measurement of plant water stress. Prerequisite: BIOL 355.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

791 SPECIAL TOPICS 1 to 3 credits
Includes areas such as bioclimatology, crop science, drainage, irrigation, plant breeding or soil science. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 3 credits
Includes bioclimatology, crop science, drainage, irrigation, soil chemistry, soil classification or soil minerology. Maximum of 6 credits

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 or 2 credits *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP 1 to 2 credits *S/U only*
Directed experience in teaching in a classroom, laboratory or cooperative extension setting. Preparation, delivery and evaluation of instruction. Written report required. May be repeated in different settings for a maximum of 3 credits.

799 DISSERTATION 1 to 24 credits

Inactive Courses

424, 624 SOIL MICROBIOLOGY AND POLLUTANT DECOMPOSITION (3 + 0) 3 credits
444, 644 IRRIGATION SYSTEM MANAGEMENT (3 + 0) 3 credits
445, 645 FARM IRRIGATION SYSTEM DESIGN (3 + 0) 3 credits
446, 646 DRAINAGE OF AGRICULTURAL LANDS (2 + 3) 3 credits
711 RESEARCH METHODOLOGY (2 + 3) 3 credits

ANATOMY (ANAT)

490, 690 INDEPENDENT STUDY 1 to 4 credits *S/U only*

601 HUMAN GROSS ANATOMY AND EMBRYOLOGY (3 + 9) 6 credits
Presents concepts in gross anatomy and embryology. Laboratories employ use of models and cadaver dissection.

602 HUMAN HISTOLOGY (2 + 3) 3 credits
Presents concepts of human medical histology and ultrastructural anatomy. Laboratories employ use of microscope slides, models and electron micrographs.

603 HEAD, NECK, CENTRAL NERVOUS SYSTEM (3 + 3) 4 credits
Introduction to the central nervous system integrated with basic anatomy of the head and neck. Designed for medical students.

616 SEMINAR IN ANATOMY (1 + 0 per credit) 1 to 8 credits
Library research and presentation in seminar fashion of a selected topic in any subdiscipline of anatomy.

617 SELECTED TOPICS IN ANATOMY (0 + 3 per credit) 1 to 8 credits
Comprehensive study by dissection of a selected area or system of the human body.

618 READINGS IN ANATOMY (1 + 0 per credit) 1 to 8 credits *S/U only*
Readings on selected topics in anatomy; involves library research and discussions with the anatomy staff; may include preparation and submission of a paper.

619 RESEARCH IN ANATOMY (0 + 3 per credit) 1 to 8 credits
Individual or independent work on a special problem under the supervision of a member of the anatomy staff with whom the student's interests are closely related.

725 MEDICAL HUMAN ANATOMY (4 + 12) 8 credits
Schedule in anatomy comparable to that offered in ANAT 601, 602, 603. For students of medicine and graduate students in life sciences.

726 HEAD AND NECK ANATOMY I (2 + 3) 3 credits
Emphasis on clinical correlation and related aspects of oral biology. Prerequisite: a degree in medicine or dentistry.

727 HEAD AND NECK ANATOMY II (2 + 3) 3 credits
Continuation of ANAT 726. Detailed anatomy and dissection of the deeper head areas with emphasis on the oral cavity. Neurological implication of lesions of cranial nerves. Prerequisite: ANAT 726.

728 ADVANCED HUMAN NEUROANATOMY AND NEUROPHYSIOLOGY (2 + 3) 3 credits
Functional anatomy of fiber tracts and nuclear centers of the central nervous system, clinical neurology in terms of lesions of the central and peripheral nervous system; recent findings of neurophysiology in conjunction with neuroanatomy. Prerequisite: a degree in medicine or dentistry.

ANIMAL SCIENCE (A SC)

100 ELEMENTS OF LIVESTOCK PRODUCTION (3 + 0) 3 credits
Fundamental concepts in care, management and economics of food producing animals. Includes contributions of the Nevada and U.S. animal industries in providing food on an international basis.

162 BASIC HORSEMANSHIP (1 + 0) 1 credit
Elementary horse nutrition, health and management, including a study of the horse's anatomy and conformation as related to riding.

163 HORSEMANSHIP (1 + 3) 2 credits *S/U only*
Basic equitation theory and principles and their application in English and Western equitation.

200 STABLE MANAGEMENT (1 + 2) 2 credits
Skill development in the management of a commercial stable including care of horses, budget planning, records, public relations and business considerations. Prerequisite: A SC 162, 163.

201 LIVESTOCK SELECTION (1 + 3) 2 credits
Evaluation of livestock with major emphasis on beef, swine and sheep. Prerequisite: A SC 100.

203 MEAT TECHNOLOGY (2 + 3) 3 credits
Principles of conversion of animals to muscle foods. Processing, packaging preservation and sensory evaluation of meat as it relates to the consumer and food service industry.

206 HORSE HUSBANDRY (2 + 3) 3 credits
Care and management of horses including breeding, disease, nutrition and selection. Prerequisite: A SC 100 or BIOL 201.

208 INTERMEDIATE HORSEMANSHIP (0 + 3) 1 credit
Advancement of skill levels in theory and practice to the intermediate stages of English and western riding, beginning dressage, equitation over fences, western riding patterns. Prerequisite: A SC 162, 163.

211 FUNDAMENTALS OF ANIMAL NUTRITION (3 + 0) 3 credits
Basic principles of nutrition including maintenance, growth, reproduction and lactation: Composition of feedstuffs and role of nutrients in the animal's body. Prerequisite: A SC 100, CHEM 101.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in animal science.

305 INTRODUCTION TO DEBOURRAGE (1 + 4) 3 credits
Schooling of the horse, gentling, longing, bridling, and preliminary and intermediate training at various gaits and movements. Prerequisite: A SC 162, 163, 206.

307 PHYSIOLOGY OF THE DOMESTIC ANIMAL (3 + 0) 3 credits
Physiology of the neuromuscular, central nervous, circulatory, respiratory, digestive, endocrine, reproductive and excretory systems with special reference to domestic animals. Prerequisite: BIOL 201.

309 PHYSIOLOGY OF REPRODUCTION (3 + 0) 3 credits
Reproductive organs and their functions, neural and endoctine interrelationships and responses to environmental influences. Prerequisite: CHEM 142, A SC 307 or BIOL 263.

315 ADVANCED HORSEMANSHIP (0 + 3) 1 credit
Advanced skill development for English and western riders. Combined training, dressage, jumping, flying lead changes, riding patterns, cattle work. Prerequisite: A SC 162, 163, 208.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

325 ANIMAL GENETICS (2 + 3) 3 credits
Mechanisms of heredity, variation, methods of selection, systems of mating with special reference to livestock. Prerequisite: BIOL 201.

400 SEMINAR (1 + 0) 1 credit
Reports on research work and topics of interest in animal science.

406, 606 ADVANCED NUTRITION MANAGEMENT (3 + 3) 4 credits
Interrelationships between feed composition and nutrient requirements; formulation of rations by computers; ration evaluation and avoidance of imbalances. Prerequisite: A SC 211, CHEM 142 or equivalent.

411, 611 TECHNIQUES IN LIVESTOCK REPRODUCTION (1 + 3) 2 credits
Evaluation and application of various techniques to control and determine reproductive functions in livestock. Prerequisite: A SC 309 or equivalent.

412 BEEF AND SHEEP PRODUCTION (2 + 3) 3 credits
Principles of beef and sheep production and the application of breeding, physiology and nutrition to their production under western ranch and farm environments. Prerequisite: A SC 100, BIOL 201.

413, 613 RANGE-LIVESTOCK INTERACTION (3 + 0) 3 credits
Emphasis on species and breed selection, physiological considerations and alleviating detrimental effects on livestock. Interactions among livestock, wildlife and plant communities. Prerequisite: A SC 100 or BIOL 101.

414, 614 ENDOCRINOLOGY (3 + 0) 3 credits
Structure and function of endocrine glands and how their secretions regulate biochemical reactions, integrate tissue and organ systems and control behavior. Prerequisite: A SC 307 or BIOL 385 or 386. (Same as BIOL 414, 614.)

422, 622 INSECT PESTS OF ANIMALS (3 + 0) 3 credits
(See IPM 422, 622 for description.)

423 HORSE PRODUCTION (2 + 3) 3 credits
Principles of equine production and application of breeding, physiology and nutrition to their production and marketing. Prerequisite: A SC 206.

424 DAIRY CATTLE PRODUCTION (1 + 3) 2 credits
Principles of dairy production including management, lactation, nutrition, physiology, milk and by-products. Prerequisite: A SC 100, BIOL 201.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in animal science. Maximum of 6 credits.

485 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits.
Presentation and review of recent research, innovations and development in various animal science areas including animal breeding, animal health, animal management, meats, nutrition and physiology. Maximum of 6 credits.

700 STATISTICAL METHODS (2 + 2) 3 credits
Techniques of statistical inference and their application. Prerequisite: AGEC 270.

782 ADVANCED TOPICS IN REPRODUCTION 1 to 3 credits
Intensive study of topics in (a) morphological and functional changes, (b) gamete development and functions, (c) early embryonic development and manipulation, (d) chemical messengers. Maximum of 6 credits.

783 ADVANCED TOPICS IN ANIMAL NUTRITION 1 to 3 credits
Intensive study of topics in (a) energy metabolism, (b) nitrogen metabolism, (c) mineral and vitamin metabolism, (d) laboratory techniques. Maximum of 6 credits.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest in animal science. Maximum of 2 credits.

791 SPECIAL TOPICS 1 to 3 credits
Intensive study of special topics in animal science. Maximum of 6 credits.

792 SPECIAL PROBLEMS (2 + 0) 2 credits
Recent research in various areas in animal science including nutrition, physiology, breeding, meats or animal health is discussed and evaluated. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Required of all graduate students who wish to complete the master of science degree under Plan B.

797 THESIS 1 to 6 credits

ANTHROPOLOGY (ANTH)

101 THE HUMAN EXPERIENCE (3 + 0) 3 credits
Introduction to human culture and society. Understanding human diversity through comparative study of politics, religion, economics, and kinship.

102 INTRODUCTION TO HUMAN ORIGINS AND EVOLUTION (3 + 1) 3 credits
Biological and evolutionary origins of humans, with consideration of population genetics, living primates, fossil record and human variation. Includes four laboratory experiences.

200 PEOPLES AND CULTURES OF THE OLD WORLD (3 + 0) 3 credits
Comparative survey of selected peoples of Asia, Africa and Europe, including a discussion of methods and concepts used to study and explain human cultural adaptation. Prerequisite: ANTH 101.

201 PEOPLES AND CULTURES OF THE NEW WORLD (3 + 0) 3 credits
Comparative survey of selected cultures of North and South America, the Pacific Islands and Australia, including a discussion of basic social and cultural institutions and processes of change. Prerequisite: ANTH 101.

202 INTRODUCTION TO ARCHAEOLOGY (3 + 0) 3 credits
Uses of archaeology to understand and interpret major stages of human cultural development from beginnings to first civilizations.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3 + 0) 3 credits
Ethnic relations in the U.S. and other societies where cultural and "racial" pluralism illustrates problems and processes of social interaction. Prerequisite: introductory course in one of the social sciences. (Same as SOC 205.)

210 FOLKLORE, MYTH, AND LEGEND (3 + 0) 3 credits
Anthropological analysis of the human experience as expressed in myths, legends, folktales, and oral tradition.

212 MALE AND FEMALE: ANTHROPOLOGICAL PERSPECTIVES (3 + 0) 3 credits
Examination of male and female roles and family organization in human societies from the perspective of human evolutionary theory and comparative ethnographic evidence. Prerequisite: ANTH 101.

215 ANTHROPOLOGICAL FILM (2 + 2) 3 credits
Historical development and contemporary significance of documentary films about non-western peoples and cultures.

300 BEGINNING FIELD ARCHAEOLOGY (1 + 6) 3 credits
Practical experience in archaeological survey and excavation. Saturday lectures, exercises, and field trips.

309 MUSEOLOGY (3 + 0) 3 credits
History and philosophy of museums; their role in contemporary society; museum organization, management, program planning, funding, publications, guest speakers, supervised field trips to museums. (Same as ART 309, BIOL 309, GEOL 309, HIST 309.)

312 COMPARATIVE SOCIAL ORGANIZATION (3 + 0) 3 credits
Basic institutions of human society; examination of the variability of structure in social system and culture. Prerequisite: ANTH 101.

330 TECHNOLOGY AND CULTURE (3 + 0) 3 credits
Material culture and manufacturing processes in societies of differing scales and levels of complexity; factors influencing technological development and change.

345 AMERICAN INDIAN ART (3 + 0) 3 credits
The nature, function and history of American Indian arr; formal and esthetic approaches; traditional and contemporary perspectives.

400, 600 FIELD SCHOOL IN ARCHAEOLOGY 6 credits
Summer instruction and practice in survey, excavation, and analysis. Prerequisite: special advance application.

401, 601 THEORY IN ARCHAEOLOGY (3 + 0) 3 credits
Past and current theories in archaeological interpretation. Prerequisite: ANTH 202.

402, 602 LABORATORY METHODS IN ARCHAEOLOGY (1 + 3) 2 credits
Techniques for cleaning, repairing and storing artifacts from archaeological collections. Management of archaeological laboratories and collections, including data retrieval systems. Prerequisite: ANTH 102, 202.

403, 603 COLLECTIONS RESEARCH IN ANTHROPOLOGY
(1 + 3) 2 credits
Practicum in anthropological theory and method. Ethnographic, archaeological or similar collections are described, analyzed and interpreted under close supervision. Prerequisite: ANTH 101.

404, 604 ENVIRONMENTAL ARCHEOLOGY (3 + 0) 3 credits
Topics selected from paleoecology, taphonomy, geoarcheology, and dating methods; lectures, readings, and field trips cover advanced principles, method and theory, and practical applications.

405, 605 ANTHROPOLOGICAL LINGUISTICS (3 + 0) 3 credits
Distribution of languages of the world. Descriptive techniques and theoretical concepts in linguistics; their application to specific problems in anthropology. Prerequisite: ANTH 101.

406, 606 MEDICAL ANTHROPOLOGY (3 + 0) 3 credits
Application of anthropological theory and methods to human health, illness, and healing. Practioners, clients, and comparative medical systems.

409, 609 ARCHAEOLOGY OF THE OLD WORLD (3 + 0) 3 credits
Survey of current archaeological knowledge about a particular area of the Old World to be selected from Africa, Asia and Europe. May be repeated once. Prerequisite: ANTH 102 or 202.

410, 610 ETHNOGRAPHIC FIELD METHODS (2 + 4) 4 credits
Preparation of research designs, techniques of collecting data in the field, work with informants; organization and analysis of data, research aids. Prerequisite: ANTH 312.

411, 611 LINGUISTICS (3 + 0) 3 credits
(See ENGL 411 for description.)

414, 614 HISTORICAL LINGUISTICS (3 + 0) 3 credits
(See ENGL 414 for description.)

415, 615 PHONEMICS AND COMPARATIVE PHONETICS (3 + 0) 3 credits
(See ENGL 415 for description.)

416, 616 LINGUISTIC FIELD METHODS (2 + 3) 3 credits
Procedures in eliciting, recording and analyzing language. Students work with informants. Prerequisite: ANTH 305 or 411 or 415. (Same as ENGL 416.)

420, 620 AMERICAN INDIAN LANGUAGES (3 + 0) 3 credits
Classification of American Indian languages; history of research in this field, structural features of representative languages; survey of research problems. Prerequisite: ANTH 316.

423, 623 ARCHAEOLOGY OF NORTH AMERICA (3 + 0) 3 credits
New world prehistory with emphasis on North America; early man, influences from middle America and cultural sequences of western North America. Lecture and discussion of methodology and field problems. Prerequisite: ANTH 102.

424, 624 HISTORICAL ARCHAEOLOGY (3 + 0) 3 credits
European exploration and colonization of the New World, Africa, Asia, and the Pacific after 1492. Archaeology of shipwrecks, cities, and industry. Prerequisite: ANTH 101.

425, 625 ARCHAEOLOGY OF ANCIENT NEW WORLD CIVILIZATIONS
(3 + 0) 3 credits
Comparative study of indigenous civilizations in Mexico, Central America, and South America prior to the European conquest.

429, 629 LANGUAGE AND CULTURE (3 + 0) 3 credits
Nature of language in light of anthropological research, diversity of the world's languages, relation of language to social organization and world view. Prerequisite: ANTH 101.

430, 630 PROBLEMS IN PHYSICAL ANTHROPOLOGY (3 + 0) 3 credits
Theories of human evolution, study of fossil hominids, racial classification and genetics, anthropometry. Prerequisite: ANTH 102.

431, 631 PRIMATE EVOLUTION (3 + 0) 3 credits
Detailed consideration of the record of primate and human evolution and paleobiology; review of contributions from paleontology, geology, behavioral biology, and ecology. Prerequisite: ANTH 102.

435, 635 PRIMATE BEHAVIOR (3 + 0) 3 credits
Behavior and social organization of the nonhuman primates; comparisons with human populations, implications for human evolution. Pretequisite: ANTH 101 or 102.

436, 636 PHYSICAL ANTHROPOLOGY (3 + 0) 3 credits
Variation, adaptation and evolution of human populations. Processes evolution, taxonomy and classificarion, human genetics, adaptation and acclimatization, mating systems and population dynamics and paleoanthropology. Prerequisite: ANTH 102.

440, 640 HISTORY OF ANTHROPOLOGY (3 + 0) 3 credits
Anthropological ideas about humanity and culture in Western social thought; comparison of contemporary theories of culture and society. Required of majors in senior year.

444 ORAL HISTORY: THEORY AND METHOD (2 + 4) 3 credits
(See L SC 444 for description.)

450, 650 PEASANT SOCIETY (3 + 0) 3 credits
Evaluation of concept of "peasantry" as social type in light of cross-cultural comparison of the world peasantries (including materials from Europe, Latin America, Asia and Aftica); emphasis upon the economic, political and religious relationships between the peasant and urban sectors of national cultures; examination of the role of the peasantry in the modernization of developing nations. Prerequisite: ANTH 101.

452, 652 POLITICAL ANTHROPOLOGY (3 + 0) 3 credits
Comparative study of the political organization of band, tribal and state-level societies. Analysis of the modernization of traditional regions and of peasant and primitive warfare, rebellion and revolutions. Prerequisite: ANTH 101.

455, 655 INTRODUCTION TO BASQUE LINGUISTICS (3 + 0) 3 credits
(See BASQ 455 for description.)

460, 660 SEMINAR IN CULTURAL ANTHROPOLOGY
(1 to 3 + 0) 1 to 3 credits.
Consideration of selected topics in ethnology, ethno-linguistics or social anthropology. Topics vary from semester to semester. Maximum of 6 credits.

461, 661 INDIANS OF THE GREAT BASIN (3 + 0) 3 credits
Intensive study of indigenous cultures of the intermontane region of western North America; tribal distribution, problems in culture areas, social organization and change.

462, 662 INDIANS OF NORTH AMERICA (3 + 0) 3 credits
Culture areas of North America and related areas of Meso-America. Comparative culture institutions and material from representative groups; review of theoretical problems in North American ethnology. Prerequisite: ANTH 101.

463, 663 INDIANS OF SOUTH AMERICA (3 + 0) 3 credits
Culture areas of South America and related areas of Meso-America. Comparative cultural institutions and material from representative groups; review of theoretical problems in South American ethnology. Prerequisite: ANTH 101.

464, 664 CONTEMPORARY LATIN AMERICAN SOCIETY (3 + 0) 3 credits
Survey of the structural features of Latin American society from the time of Luso-Hispanic contact to the present; emphasis upon cultural pluralism within national structures, race relations and processes of social change. Prerequisite: ANTH 101.

465, 665 CULTURE AND PERSONALITY (3 + 0) 3 credits
Examination of significant studies on the role of culture in the formation of personality. Prerequisite: ANTH 101 or PSY 101 or SOC 101.

466, 666 OLD WORLD BASQUE CULTURE (3 + 0) 3 credits
(See BASQ 466 for description.)

467, 667 PEOPLES AND CULTURES OF SOUTHEAST ASIA (3 + 0) 3 credits
Analysis of representative cultures of southeast Asia, their origins and development. Prerequisite: ANTH 101.

468, 668 PEOPLES AND CULTURES OF THE PACIFIC (3 + 0) 3 credits
Prehistory, recent cultures and problems of change among the peoples of Oceania. Prerequisite: ANTH 101.

469, 669 PEOPLES AND CULTURES OF EUROPE (3 + 0) 3 credits
Culture history and contemporary ethnography of European peasant societies. Prerequisite: ANTH 101.

470, 670 ANTHROPOLOGY AND ECOLOGY (3 + 0) 3 credits
Introduction to processes of biological and cultural adaptation to selected environments. Relevant topics include hominid ecology, resource exploitation, patterns of subsistence and the modes and rates of adaptation to changing environments.

475, 675 ANTHROPOLOGY AND EDUCATION (3 + 0) 3 credits
Patterns of learning and transmission of culture in literate and nonliterate societies; the education process and cultural factors such as values, goals, world-view, language, and leadership. Recommended for teachers and others in multiethnic situations. Prerequisite: ANTH 101 or equivalent.

480, 680 MUSEUM TRAINING FOR ANTHROPOLOGISTS (3 + 0) 3 credits
Apprentice curatorship in anthropology; processing and preservation of anthropological collections; design of exhibits; curatorial responsibilities; museum research; relationship to public, state and federal agencies.

488, 688 PEOPLES AND CULTURES OF THE MIDDLE EAST (3 + 0) 3 credits
Survey of the ethnic, religious and linguistic groups of the middle East with attention to historical development. Prerequisite: ANTH 101.

489, 689 PEOPLES AND CULTURES OF AFRICA (3 + 0) 3 credits
African culture history; analysis of social systems and cultural distributions; emergence of modern nations. Prerequisite: ANTH 101.

491, 691 ANTHROPOLOGY OF RELIGION (3 + 0) 3 credits
Nature and functions of religion in various societies, the development of theoretical concepts in the anthropological study of religious and magical phenomena. Prerequisite: ANTH 101.

492, 692 PROCESSES OF SOCIAL AND CULTURAL CHANGE (3 + 0) 3 credits
Methods and theories of anthropology identified and analyzed. Evolution, diffusion, acculturation, integration, revitalization, modernization and other social and cultural processes are examined. Prerequisite: ANTH 101.

493, 693 COMPARATIVE ART (3 + 0) 3 credits
Nature and functions of art and aesthetic values in various societies, the techniques and forms of art; esthetics and art in anthropological theory. Prerequisite: ANTH 101.

499, 699 SPECIAL PROBLEMS IN ANTHROPOLOGY (1 to 6 + 0) 1 to 6 credits.
Research or reading to be carried out with the supervision of instructor. Maximum of 6 credits.

701 INDIVIDUAL READING 1 to 6 credits
Supervised reading with regular conferences between student and instructor. Maximum of 6 credits.

702 GRADUATE RESEARCH 1 to 6 credits
Research projects in anthropology carried out under supervision. Maximum of 6 credits.

703 GRADUATE SEMINAR IN CULTURAL ANTHROPOLOGY (3 + 0) 3 credits
Close examination of basic concepts and theories of social and cultural anthropology.

704 GRADUATE SEMINAR IN PHYSICAL ANTHROPOLOGY (3 + 0) 3 credits
Selected reading and discussion of topics in human biological evolution.

705 GRADUATE SEMINAR IN ARCHAEOLOGY AND PREHISTORY (3 + 0) 3 credits
Selected reading and discussion of topics in archaeological methods and theory.

706 SEMINAR IN ANTHROPOLOGICAL PROBLEMS (3 + 0) 3 credits
Detailed examination of selected issues in cultural anthropology, physical anthropology, anthropological linguistics or archaeology. Maximum of 6 credits.

707 METHODS IN CULTURAL ANTHROPOLOGY (3 + 0) 3 credits
Examination of methods used to collect and analyze data in social and cultural anthropology.

708 ADVANCED SEMINAR IN QUATERNARY STUDIES (3 + 0) 3 credits
Intensive examination of methods, theories, and interpretations of selected topics, including peopling of the new world, environmental change, or taphonomy of middle-range research.

713 PROBLEMS IN LANGUAGE (3 or 4 + 0) 3 or 4 credits
(See ENGL 713 for description.)

737 TEACHING METHODS IN ANTHROPOLOGY (1 + 0) 1 credit
Course objectives and organization, lecture, presentation, examination procedures and related problems in teaching the subject matter of anthropology.

750 REGIONAL STUDIES IN ANTHROPOLOGY (3 + 0) 3 credits
Selected topics focusing upon a particular region of the world. Maximum of 6 credits.

760 INTERNSHIP (0 + 9) 3 credits
Supervised professional work experience in archaeology or one of the other subfields in anthropology. Work in local governmental or private organizations under direction of professionals. Maximum of 6 credits. Prerequisite: admission to candidacy for the M.A. in anthropology.

780 GRADUATE TUTORIAL (1 to 3 + 0) 1 to 3 credits
Tutorial reading and discussion of selected topics in anthropological research, methods or theory. Prerequisite: admission to doctoral program and approval of department graduate program chairman. Maximum of 12 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Limited to students in the tutorial doctoral program. Maximum of 9 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits *S/U only*
Required of all graduate students who wish to complete the master of art's degree under Plan B.

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

ART (ART)

Many studio courses require special expenses for materials and equipment in addition to registration and laboratory fees.

100 VISUAL FOUNDATIONS (1 + 4) 3 credits
Explores visual forms and contemporary concepts through a variety of media, presentations and discussions.

111 ART EXPERIENCES (½ + 1 or 2 + 2) 1 or 3 credits *S/U only*
Introductory lecture-studio course using art of the past and present as the basis for exploration of both traditional and experimental materials and techniques. Maximum of 6 credits.

116 SURVEY OF THE ART OF WESTERN CIVILIZATION I (3 + 0) 3 credits
Art of the western world from prehistoric times through the Gothic period.

117 SURVEY OF THE ART OF WESTERN CIVILIZATION II (3 + 0) 3 credits
Art of the western world from the Renaissance to the present.

121 DRAWING (0 + 6) 3 credits
Introduction to concepts of drawing based on visual observations.

135 PAINTING (0 + 6) 3 credits
Introduction to concepts of painting including color, form and composition.

150 BEGINNING PHOTOGRAPHY (1 + 4) 3 credits
Analytical and critical approach to the creative possibilities of photography including instruction in the basics of photographic techniques and materials.

163 SCULPTURE (0 + 6) 3 credits
Introduction to the concepts of three-dimensional composition.

175 CERAMICS (1 + 4) 3 credits
Introduction to ceramics emphasizing characteristics of various clay bodies.

185 PRINTMAKING (0 + 6) 3 credits
Introduction to processes emphasizing relief, intaglio and screen processes.

212 PORTRAIT IN WESTERN ART (2 + 0) 2 credits
Portrait painting and portraiture in sculpture from the Egyptian period through modern time.

213 INTRODUCTION TO CONTEMPORARY ART (3 + 0) 3 credits
Evolution of art in Europe and the U.S. since World War II. Special emphasis on the trends since the 1960's.

214 SURVEY OF AMERICAN ART (3 + 0) 3 credits
General survey of art and architecture of Ametica from the colonial period to the present.

221-222 DRAWING (0 + 6) 3 credits each
Intermediate courses designed to develop expression and discipline in drawing with emphasis on materials. Prerequisite: ART 100, 121.

235-236 PAINTING (0 + 6) 3 credits each
Intermediate course in painting, emphasizing various materials and methods. Prerequisite: ART 100, 135.

250-251 INTERMEDIATE PHOTOGRAPHY (1 + 4) 3 credits
Lecture/study with emphasis on improving basic technical and conceptual skills. Prerequisite: ART 100, 150.

252 VIDEOGRAPHY (1 + 4) 3 credits
Lecture/studio study using broadcast quality video as a means of personal expression. Prerequiste: ART 150, 250.

256 CINEMA I/THE SILENT ERA (3 + 0) 3 credits
History of film from beginning to introduction of sound, emphasizing development of forms and techniques. Film showings, lectures and discussions.

257 CINEMA II/THE SOUND ERA 1 to 3 credits
History of the film from the introduction of sound with specific emphasis on particular time blocks and possible social/psychological relevance and/or influence. Maximum of 6 credits.

258-259 GRAPHIC DESIGN (1 + 4) 3 credits each
Design and production of camera-ready art. Emphasis on layout, mechanicals, illustrations, typography, trademark, packaging and product promotion. Prerequisite: ART 100 and a two-dimensional art course.

260 NEW MEDIA (1 + 4) 3 credits
Exploration of alternative concepts and media that may include video, performance art, audio and other experimental processes. Maximum of 6 credits.

263-264 SCULPTURE (0 + 6) 3 credits each
Intermediate emphasis on processes, concepts and materials. Prerequisite: ART 100, 163.

275-276 CERAMICS (1 + 4) 3 credits each
Intermediate emphasis on history, materials, methods and techniques with special attention to sculptural aspects. Lecture-laboratory method is employed with emphasis on research. Prerequisite: ART 100, 175.

285-286 PRINTMAKING (0 + 6) 3 credits each
Studio instruction concerned with professional printmaking processes including intaglio, relief and screen process. Prerequisite: ART 100, 185.

287 PAPERMAKING (1 + 4) 3 credits
Introduction to formation of paper sheets and casting pulp.

300 WALLWORKS (1 + 4) 3 credits
Making two and three-dimensional art designed for architectural installations. Murals and related art from cave painting to contemporary street art. Prerequisite: 6 credits of 200-level or above studio course work.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

314 MEDIEVAL ART (3 + 0) 3 credits
Detailed study of arts of the Middle Ages from 300 to 1400, including early Medieval art, Carolingian, Ottonian, Romanesque and Gothic. Prerequisite: ART 116.

315 ITALIAN RENAISSANCE ART (3 + 0) 3 credits
History of Italian art in the 15th and 16th centuries.

316 SOUTHERN BAROQUE ART (3 + 0) 3 credits
History of Italian and Spanish art from 1600 to 1750.

317 NORTHERN RENAISSANCE ART (3 + 0) 3 credits
History of Northern European art in the 15th and 16th centuries.

318 NORTHERN BAROQUE ART (3 + 0) 3 credits
History of Northern European art from 1600 to 1750.

319 FIELD STUDY 1 to 3 credits
Student-faculty seminar including group travel to art centers within the U.S. and abroad for field study experience. Maximum of 6 credits.

321-322 ADVANCED DRAWING (0 + 6) 3 credits each
Continuation of ART 221-222 offered to develop maturity of expression in a broad range of media. Prerequisite: ART 222.

335-336 PAINTING (0 + 6) 3 credits each
Continuation of ART 235-236. Prerequisite: ART 121, 236.

337-338 WATERCOLOR (0 + 6) 3 credits each
Intermediate course involving comprehensive problems in painting with transparent and opaque watercolors. Prerequisite: ART 121, 135.

342 ART EDUCATION: ELEMENTARY SCHOOLS (2 + 2) 3 credits
Theoretical foundations of art education including a planned program of media investigation and expetience in areas suitable for elementary and beginning middle school programming.

346 ART EDUCATION: SECONDARY SCHOOLS (0 + 6) 3 credits
Philosophical foundations and methods of curriculum planning and implementation for secondary art programming. A planned program of media investigation, classroom observation, and prestudent teaching experience. Prerequisite: senior standing and completion of art department major requirements.

349 ELEMENTARY ART EDUCATION/SPECIAL WORKSHOP 1 to 3 credits
Designed for the professional teacher in the field, emphasizing art and its relationship to the curriculum according to contemporary and current philosophy.

350 ADVANCED PHOTOGRAPHY I (1 + 4) 3 credits
Refinement of technical and visual skills. Lecture/study of historical and contemporary photographic processes and their creative possibilities. Prerequisite: ART 251.

351 COLOR PHOTOGRAPHY (1 + 4) 3 credits
Surveys studio and field work, investigating color light theory. Portfolio development and a study color as a means of creative expression. Prerequisite: ART 251.

352 ADVANCED VIDEOGRAPHY (1 + 4) 3 credits
Lecture/studio study designed for advanced work using broadcast video as a means of creative expression. Emphasis on producing a final project available for broadcast video as a means of creative expression. Emphasis on producing a final project available for broadcast. Prerequisite: ART 150, 250, 252.

355 HISTORY OF PHOTOGRAPHY (3 + 0) 3 credirs
Survey of the historical, technical, and social foundations of photography including emphasis on individual photographers and their work.

357 CINEMA III/THE SOUND ERA 1 to 3 credits
Historical and critical development of specific genres, styles and directors; investigating film as a developing art form and means of mass communication. Maximum of 6 credits. Prerequisite: ART 256 or 257.

363-364 SCULPTURE (0 + 6) 3 credits each
Individual concepts of sculptural form with emphasis on personal development. Prerequisite: ART 264.

375-376 CERAMICS (0 + 6) 3 credits each
Continuation of ART 275-276 with emphasis on sculpture, pottery and independent investigation of the materials. Advanced technical and aesthetic aspects of clay, clay bodies and glazes. Prerequisite: ART 276.

381 HISTORY AND PRACTICE OF PRINTING (0 + 6) 3 credits
(See L SC 381 for description.)

384 HISTORY OF THE PRINT (2 + 0) 2 credits
Historical, technical and curatorial foundations of printmaking. Field trips to regional print collections.

385-386 PRINTMAKING (0 + 6) 3 credits each
Sustained exploration in one or more of the basic print processes with emphasis on technical problems related to inks, papers and presses. Prerequisite: ART 286.

403 POSTGRADUATE ORIENTATION (2 + 0) 2 credits
Orientation to career possibilities in the field of art. Required of all art majors.

404 GALLERY MANAGEMENT (1 + 2) 2 credits
Principles and practice of traditional and alternative fine art gallery operations. Directed experiences in gallery management, curatorial and exhibit preparation techniques. Field trips.

408, 608* INDIVIDUAL STUDIES 1 to 3 credits
Individual studies in areas of two- or three-dimensional work and art history. Maximum of 6 credits.

417, 617 19TH CENTURY ART (3 + 0) 3 credits
Detailed study of the Neo-Classic, Romantic, Realist and Impressionist movements in Western art including aspects of the architectural evolution. Prerequisite: ART 116, 117.

418, 618 20TH CENTURY ART (3 + 0) 3 credits
Detailed study of visual arts from 1880 to present time discussing major movements of the period. Attention also given to 20th century architecture. Prerequisite: ART 116, 117.

419, 619* PROBLEMS IN THE HISTORY OF ART 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser.

428, 628* PROBLEMS IN DRAWING 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser. Student exhibits work as part of course requirement. Maximum of 6 credits. Prerequisite: 12 credits in drawing.

435-436 ADVANCED PAINTING (0 + 6) 3 credits each
Integration of form, space and color in advanced problems using still life, figure and landscape as points of departure. Prerequisite: ART 335-336.

438, 638 PROBLEMS IN PAINTING 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of the course requirement. Maximum of 6 credits. Prerequisite: 18 credits in painting.

450 ADVANCED PHOTOGRAPHY II (1 + 4) 3 credits
Development of individual photographic expression. Exploration of a variety of manipulative photographic materials through lecture and experimentation. Prerequisite: ART 350.

451 ADVANCED COLOR PHOTOGRAPHY (1 + 4) 3 credits
Studio instruction and concentration with an in-depth emphasis on developing a visual concept/idea within a portfolio. Prerequisite: ART 351.

453 SEMINAR IN PHOTOGRAPHY (1 + 0 per credit) 1 to 3 credits
Scheduled sections deal with in-depth investigation of a specific aspect of photography. Maximum of 6 credits. Prerequisite: ART 150, 250.

458, 658 PROBLEMS IN PHOTOGRAPHY 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 21 credits in photography.

463-464 ADVANCED SCULPTURE (0 + 6) 3 credits each
Advanced concepts of sculptural form and individual problem solving. Prerequisite: ART 363-364.

468, 668* PROBLEMS IN SCULPTURE 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 18 credits in sculpture.

475-476 ADVANCED CERAMICS (0 + 6) 3 credits each
Continuation of ART 375-376 with special emphasis on clay compounds, glazes and glaze formulation, kiln firing and temperature control. Prerequisite: ART 375-376.

478, 678* PROBLEMS IN CERAMICS 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 18 credits in ceramics.

485-486, 685-686 ADVANCED PRINTMAKING (0 + 6) 3 credits each
Emphasis on development of individual graphic expression through experimentation and refinement of one or any combination of the print processes. Prerequisite: ART 385-386.

487, 687 PAPERMAKING WORKSHOP 1 to 3 credits
Exploration of various approaches to paper forming. Mold building, pulp preparation, and two and three dimensional methods.

488, 688* PROBLEMS IN PRINTMAKING 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of the course requirement. Maximum of 6 credits. Prerequisite: 18 credits in printmaking.

490 INTERNSHIP (0 + 6) 3 credits
Supervised professional work experience in one of the following areas: (a) graphic design; (b) museum management; (c) arts administration; (d) studio operations. Prerequisite: ART 403 for all internships with addition of ART 259 for (a), ART 309 for b and 9 credits in art studio courses related to specific medium for (d). Maximum of 6 credits.

498, 698 SEMINAR IN VISUAL ARTS 1 to 3 credits
Encourages the student of art to synthesize their formal training and to integrate their specialization into the framework of liberal arts. Maximum of 6 credits.

Inactive Courses

115 ART APPRECIATION (2 + 0) 2 credits
191 CRAFTS (1 + 4) 3 credits
210 SURVEY OF MEXICAN ART (2 + 0) 2 credits
215 SURVEY OF PRIMITIVE ART (2 + 0) 2 credits
218 SURVEY OF ORIENTAL ART (2 + 0) 3 credits
293 JEWELRY (0 + 6) 3 credits
294 CREATIVE DESIGN WITH FABRIC (0 + 6) 3 credits
303-304 ART STRUCTURE AND PICTORIAL COMPOSITION (0 + 4) 2 credits each
313 SYMBOLIST ART (2 + 0) 2 credits
358-359 ADVANCED GRAPHIC DESIGN (0 + 6) 3 credits each
393 JEWELRY (0 + 6) 3 credits
394 ADVANCED CREATIVE DESIGN WITH FABRIC (0 + 6) 3 credits
416-616 HISTORY OF AMERICAN ART (3 + 0) 3 credits

BELIEFS AND VALUES (B V)

Inactive Course

264 SCIENCE AND RELIGION (3 + 0) 3 credits

BIOCHEMISTRY (B CH)

150 BIOTECHNOLOGY: SCIENCE AND THE CITIZEN (3 + 0) 3 credits
Acquaints the non-science major with the language and techniques of biotechnology. Visiting speakers discuss related political and social problems.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem. Maximum of 6 credits.

355 PLANT PHYSIOLOGY (3 + 0) 3 credits
(See BIOL 355 for description.)

400, 600 INTRODUCTORY BIOCHEMISTRY (4 + 0) 4 credits
Major metabolic pathways and control mechanisms for carbohydrates, lipids and amino acids, includes energetics, photosynthesis, vitamins, cell organization, carbohydrate and lipid structure, protein and nucleic acid structure and biosynthesis, enzyme kinetics and regulation of gene function. Meets requirements for a single semester survey of metabolism. Prerequisite: CHEM 102 or 104; 142 or 244 for B CH 400; CHEM 244 for B CH 600.

403, 603 BIOLOGICAL CHEMISTRY LABORATORY I (0 + 6) 2 credits
Selected experiments illustrating methodology used in investigating the chemistry of living systems. Prerequisite or corequisite: B CH 400.

404, 604 BIOLOGICAL CHEMISTRY LABORATORY II (0 + 6) 2 credits
Selected experiments illustrating methodology used in investigating the chemistry of living systems. Prerequisite or corequisite: B CH 403 or 603 and 413 or 417.

407 ADVANCED BIOCHEMISTRY LABORATORY I (0 + 9) 3 credits *S/U only*
For biochemistry majors only. Senior thesis laboratory. Prerequisite: B CH 404.

408 ADVANCED BIOCHEMISTRY LABORATORY II (0 + 9) 3 credits
For biochemistry majors only. Senior thesis laboratory. Prerequisite: B CH 404, 407.

412, 612 PLANT BIOCHEMISTRY (3 + 0) 3 credits
Plant metabolism with emphasis on reactions unique to plants such as photosynthesis, alkaloid biosynthesis, nitrogen fixation. Prerequisite: B CH 400 or equivalent.

*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.

413, 613 BIOCHEMISTRY OF MACROMOLECULES (4 + 0) 4 credits
In-depth examination of the structure and function of lipids and membranes, proteins and enzymes, carbohydrates and nucleic acids. Includes molecular genetics and enzyme kinetics. Prerequisite: B CH 400, CHEM 244, 354 or 451 and a course in biology.

417, 617 METABOLIC REGULATION (4 + 0) 4 credits
In-depth examination of metabolism and regulation of carbohydrates, lipids, proteins, enzymes, nucleic acids, relationship of metabolism to the life processes of the whole organism. Prerequisite: B CH 400, CHEM 244 and a course in biology.

420-421 PROSEMINAR (1 + 0) 1 credit each *S/U only*
Emphasizes biochemical literature and provides practice in the oral presentation of scientific material. Prerequisite or corequisite: B CH 413, 417. B CH 420 is required for B CH 421.

432, 632 ENVIRONMENTAL TOXICOLOGY (3 + 0) 3 credits
Chemistry and toxicology of toxicants in the environment, particularly pesticides. Other topics include metals, food additives and hazardous wastes. Prerequisite: CHEM 101, 102, 142.

450 RADIOTRACER TECHNIQUES (1 + 3) 2 credits
Introduction to the use of radioactive materials as tracers with special reference to agricultural application. Prerequisite: CHEM 330.

460, 660 RADIATION AND LABORATORY SAFETY
(1 or 2 + 0) 1 or 2 credits
Latest regulations and techniques in laboratory safety; including sections on biohazards, toxic chemical materials, CPR and radiological materials. Prerequisite: CHEM 102 or 330. Corequisite: BIOL 201 or 202.

480, 680 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem. Maximum of 6 credits.

601 HUMAN BIOCHEMISTRY I (4 + 6) 5 credits
Emphasis on application in medicine. Includes macromolecular chemistry, intermediate metabolism and biochemical regulatory mechanisms in health and disease. Prerequisite: limited to M.D. students only.

602 HUMAN BIOCHEMISTRY II (3 + 6) 4 credits
Emphasis on application in medicine. Includes macromolecular chemistry, intermediate metabolism and biochemical regulatory mechanisms in health and disease. Prerequisite: limited to M.D. students only.

701-702 EXPERIMENTAL BIOCHEMISTRY I and II (0 + 9) 3 credits each
Intensive laboratory in biochemical research methodology. Oral and written reports on each research project required. Prerequisite: biochemistry major, B CH 400, 404.

705 MOLECULAR GENETICS (4 + 0) 4 credits
Molecular view of procaryotic and eucaryotic genes. Structure, expression and regulation of genes. Genetic engineering and somatic cell genetics. Techniques used in study of genetic information. Prerequisite: CHEM 142 and 244, two semesters of general biology, B CH 400. Prerequisite or corequisite: B CH 413, 613.

710 RADIOTRACER METHODOLOGY (1 + 3) 2 credits
Use of radioactive materials as tracers. Prerequisite: CHEM 330. Recommended: B CH 400. Not available for students having completed B CH 450.

711-712 BIOCHEMICAL TECHNIQUES (0 + 4 or 8) 1 or 2 credits each
Introduction in depth to details of biochemical techniques and equipment. Prerequisite: B CH 400.

718 PLANT METABOLISM (3 + 0) 3 credits
Study of metabolic pathways unique to plants and to include currently significant topics. Prerequisite: B CH 400.

722 METABOLISM (3 + 0) 3 credits
Consideration at the molecular level of selected anabolic and catabolic processes. Prerequisite: B CH 417.

731 PHYSICAL BIOCHEMISTRY (3 + 0) 3 credits
Physical chemistry of biochemical systems. Prerequisite: B CH 413, CHEM 354.

740 ENZYMOLOGY (3 + 0) 3 credits
Enzyme kinetics, specificity, mechanisms, inhibition, structure, formation and control. Prerequisite: B CH 413.

751 NUCLEIC ACIDS (3 + 0) 3 credits
Structure, synthesis, isolation and biological role of DNA and RNA and enzymes relating to these compounds. Prerequisite: B CH 413.

752 MITOCHONDRIAL STRUCTURE AND FUNCTION (3 + 0) 3 credits
Respiratory chain, phosphorylation, compartmentation, metabolic control, ultrastructure, ion translocation, energy coupled changes in volume and structure and theories of biogenesis. Prerequisite: B CH 417.

790 SEMINAR (1 + 0) 1 credit
Report by students and faculty on topics of interest in biochemistry. Maximum of 3 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Independent study in a specialized area. Maximum of 6 credits.

794 COLLOQUIUM (1 + 0) 1 credit
Presentation and analysis of original research in (a) carbohydrate metabolism, (b) lipid metabolism, (c) oxidative stress, (d) bioenergetics, (e) polynucleotide chemistry, (f) supramolecular systems, (g) enzyme kinetics, (h) biocatalytic mechanisms, (j) natural products chemistry, (k) protein chemistry, (m) molecular genetics, (n) plant biochemistry, (p) nutritional biochemistry, (q) bioactive compounds, and (r) photosynthesis. Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
Thesis may be written in any area of biochemistry.

799 DISSERTATION 1 to 24 credits

Inactive Courses

760 MINERAL METABOLISM (3 + 0) 3 credits

BIOLOGY (BIOL)

100 BIOLOGY: PRINCIPLES AND APPLICATIONS (2 + 2) 3 credits
Basic biological concepts, interpretation and application of scientific methods, effects of biological advances on society. Core curriculum science course; can not be used for credit toward field of concentration in biology.

101 GENERAL BIOLOGY I (3 + 0) 3 credits
Integrated treatment of biological principles common to all living organisms including life chemistry, cellular and molecular biology, reproduction, genetics, evolution and ecology. Unity of life emphasized.

102 METHODS OF BIOLOGICAL INVESTIGATION (0 + 3) 1 credit
General concepts of experimental biology common to all fields of biology including investigative techniques, data analysis, report writing and use of research equipment. Prerequisite: BIOL 101.

201 ANIMAL BIOLOGY (3 + 0) 3 credits
Biology and diversity of the major groups including evolutionary relationships. Prior knowledge of general biological principles is strongly recommended.

202 PLANT BIOLOGY (3 + 0) 3 credits
Biology and diversity of the major groups including evolutionary relationships. Prior knowledge of general biological principles is strongly recommended.

208 CELL BIOLOGY (3 + 0) 3 credits
Cellular phenomena which provide the foundations of life. Cell chemistry, physiology, and anatomy. Structure and function of membranes, mitochondria, chloroplasts, nucleus and other organelles. Prerequisite: BIOL 101 and one semester of chemistry.

212 GENERAL ECOLOGY (3 + 0) 3 credits
Basic ecological principles; effects of environmental factors on plants and animals with their interactions considered in detail. Prerequisite: BIOL 101, 201 or 202.

251 MICROBIOLOGY (2 + 3) 3 credits
Bacteria and related microorganisms. Morphology, physiology, classification, economic and medical importance considered. Prerequisite: BIOL 101.

262 HUMAN ANATOMY AND PHYSIOLOGY I (2 + 3) 3 credits
The body as a whole. Integumentary, skeletal, muscular, circulatory-lymphatic and respiratory systems of man. Primarily for nursing, physical education and home economics majors. Prerequisite: BIOL 101.

263 HUMAN ANATOMY AND PHYSIOLOGY II (2 + 3) 3 credits
Digestive, urogenital, nervous, sensory and endocrine system. Primarily for nursing, physical education and home economics majors. Prerequisite: BIOL 262.

290 PRINCIPLES OF GENETICS (3 + 0) 3 credits
Heredity and variation among plants and animals. Prerequisite: BIOL 101, 201 or 202, 208.

294 LABORATORY IN ECOLOGY (1 + 3) 2 credits
Research techniques and investigative approaches in field and laboratory studies in ecology. Prerequisite: BIOL 101, 102; prerequisite or corequisite: BIOL 212.

303 HUMAN GENETICS (3 + 0) 3 credits
Fundamentals of genetics and their application to biology and human welfare: chromosome related abnormalities, their medical and social implications; chromosome structure, identification and function. Prerequisite: BIOL 290; some training in chemistry and mathematics.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

310 MUSEUM TRAINING FOR BIOLOGIST (1 + 6) 3 credits
Collecting, preparing and curating plant and animal specimens for museum collections and exhibits in Nevada State Museum and Biology Department Museum.

315 ORGANIC EVOLUTION (3 + 0) 3 credits
Chemical origin of life; history of evolutionary thought; fields of evidence; genetics and mechanics of evolution; speciation; evolution of major groups of organisms. Prerequisite: BIOL 101.

320 EXPERIMENTAL FIELD ECOLOGY (2 + 3) 3 credits
Intensive summer course in Little Valley. Introduction to the area's natural history and to techniques for field study of plants and animals; individual and group projects. Prerequisite: BIOL 212, 294.

325 COMPUTER ACQUAINTANCE FOR BIOLOGICAL SCIENCES (2 + 2) 3 credits
Introduction to the computer and its applications. BASIC programming, word processing, data file management, use of statistical packages, and other applications. Prerequisite: elementary algebra.

330 PLANT DIVERSITY (3 + 3) 3 credits
Evolutionary survey of organisms commonly called plants. Includes Monera, plant-like Protoctista, vascular and non-vascular plants, and fungi. Prerequisite: BIOL 202.

333 SYSTEMATIC BOTANY OF FLOWERING PLANTS (3 + 0) 3 credits
Morphology, taxonomy and evolution of the principal plant orders, families, and genera. Emphasis on morphological and evolutionary adaptations. Local flora recognition included. Prerequisite: BIOL 101 or 202.

334 SYSTEMATIC BOTANY OF FLOWERING PLANTS LABORATORY (0 + 6) 2 credits
Optional laboratory to accompany BIOL 333.

347 PLANT ECOLOGY (3 + 3) 4 credits
Plant-environment interactions at the individual, population, community, and ecosystem levels. Prerequisite: BIOL 202, 212, 294. (Same as RWF 347.)

355 PLANT PHYSIOLOGY (3 + 0) 3 credits
Basic physiological processes in plants, nutrition, metabolism, growth and development. Prerequisite: BIOL 101, 202 or CHEM 142. (Same as B CH 355.)

356 PLANT PHYSIOLOGY LABORATORY (0 + 3) 1 credit
Optional laboratory to accompany BIOL 355.

368 PARASITOLOGY (3 + 0) 3 credits
Parasitic animals of medical, veterinary and wildlife importance.

370 ENTOMOLOGY (2 + 3) 3 credits
Origins, evolution, taxonomy, biogeography, morphology, physiology, behavior, and ecology of insects. Laboratory includes identification, experiments, and field study. Prerequisite: BIOL 201.

372 ICHTHYOLOGY (2 + 0) 2 credits
Systematics, ecology and biology of fishes. Prerequisite: BIOL 101, 201.

373 ICHTHYOLOGY LABORATORY (0 + 3) 1 credit
Optional laboratory to accompany BIOL 372. Prerequisite: BIOL 101, 201.

376 ORNITHOLOGY (3 + 0) 3 credits
Origins, evolution, taxonomy, biogeography, morphology, physiology, behavior, and ecology of birds. Prerequisite: BIOL 201.

377 FIELD ORNITHOLOGY (0 + 4) 1 credit
Optional course to accompany BIOL 376. Bird identification, behavior and ecology in the field. Corequisite: BIOL 376.

378 MAMMALOGY (3 + 3) 4 credits
Origins, evolution, taxonomy, biogeography, morphology, physiology, behavior, and ecology of mammals. Laboratory includes identification, experiments, and field studies. Prerequisite: BIOL 201.

401, 601 BIOLOGY JOURNAL SEMINAR (1 + 0) 1 credit
Survey of periodical literature of biology. Oral and written reports by the student will give experience in searching and interpreting literature. Maximum of 6 credits.

404, 604 POPULATION GENETICS (4 + 0) 4 credits
Genetics of populations and mechanisms of evolution. Includes equilibrium conditions and forces altering gene frequencies and polygenic and quantitative inheritance. Prerequisite: BIOL 290.

408, 608 CYTOGENETICS (CHROMOSOMAL MECHANISMS) (2 + 3) 3 credits
Origin, transmissibility and effects of numerical and structural alterations of chromosomes; their role in understanding basic cytogenetic problems, evolution and practical breeding. Prerequisite: BIOL 290 or 303.

414, 614 ENDOCRINOLOGY (3 + 0) 3 credits
(See A SC 414, 614 for description.)

420, 620 AQUATIC ECOLOGY (2 + 3) 3 credits
Biological, chemical, and physical characteristics of aquatic environments with particular emphasis on ecological processes. Prerequisite: BIOL 201; CHEM 101 or 201.

434, 634 BIOGEOGRAPHY (3 + 0) 3 credits
(See GEOG 434 for description.)

446, 646 DESERT AND MONTANE ECOSYSTEMS (3 + 0) 3 credits
Extended field trip to acquaint students with the biota of selected desert or montane areas. Maximum of 6 credits. Prerequisite: BIOL 212.

460, 660 COMPARATIVE PHYSIOLOGY (3 + 0) 3 credits
Comparative examination of the function of animal systems. Prerequisite: CHEM 142 or 344; BIOL 366.

468, 668 HISTOLOGY (3 + 3) 4 credits
Microscopic anatomy of tissues and organs with emphasis on mammals. Prerequisite: BIOL 101, 201; a course in vertebrate or mammalian anatomy.

475, 675 NEUROBIOLOGY (3 + 3) 4 credits
Basic neurosciences; characteristics of excitable tissues, central nervous mechanisms in sensation, neural control of movement, functional neuroanatomy. Prerequisite: a course in animal physiology or anatomy.

480, 680 DEVELOPMENTAL BIOLOGY (3 + 0) 3 credits
Developmental patterns, mechanisms of cellular differentiation and cell interactions. Prerequisite: BIOL 201, 208.

481, 681 PRINCIPLES OF ANIMAL BEHAVIOR (3 + 0) 3 credits
(See PSY 481, 681 for description.)

482, 682 ANIMAL BEHAVIOR LABORATORY (0 + 3) 1 credit
(See PSY 482, 682 for description.)

485, 685 COMPARATIVE POPULATION ECOLOGY (3 + 0) 3 credits
Characteristics, dynamics and interactions of plant and animal populations. Prerequisite: BIOL 212; BIOL 347 or 381.

486, 686 COMMUNITY ECOLOGY (3 + 0) 3 credits
Characteristics, dynamics and interactions of communities of organisms. Prerequisite: BIOL 212; BIOL 347 or 381.

491, 691 SPECIAL PROBLEMS 1 to 3 credits
Independent study or research in selected topics in biology. Maximum of 8 credits.

492-493 RESEARCH 3 credits each
Directed research course for biology majors under the guidance of a faculty member. Design and conduct original research leading to the presentation of a paper. Prerequisite: recommendation of a biology faculty member.

495, 695 SEMINAR 1 credit
Presentation by students of reviews and discussion of assigned reports of research in biological literature. Maximum of 2 credits. Prerequisite: 9 credits of biology.

702 SUPERVISED TEACHING IN COLLEGE BIOLOGY (1 + 0) 1 credit
Methods and creative approaches for improving quality of undergraduate teaching of biological science.

705 CURRENT TOPICS IN CELL AND MOLECULAR BIOLOGY (2 or 3 + 0) 2 or 3 credits
Review and analysis of recent literature on selected topics concerning the molecular basis of cell structure and function. Maximum of 9 credits.

706 ADVANCED MICROBIOLOGY (3 + 0) 3 credits
Review and discussion of recent research involving cell structure, physiology,

taxonomy, genetics, and/or ecology of microorganisms. Prerequisite: BIOL 251.

708 ADVANCED CYTOGENETICS (2 + 0) 2 credits
Structure, duplication and functioning of chromosomes and nucleolus. Emphasis is on spontaneous and induced chromosome aberrations as related to chromosome structure and reproduction.

710 CELLULAR PHYSIOLOGY (3 + 0) 3 credits
Includes considerarion of structure and function of cellular membranes and associated transport systems, properties of intracellular physical and chemical systems and cellular environment. Prerequisite: BIOL 355 or 460.

711 ADVANCED CELLULAR BIOLOGY (3 + 0) 3 credits
Critical analysis of selected topics. Emphasis on molecular mechanisms of intracellular protein trafficking.

712 SYSTEMS MODELING IN ECOLOGY (3 + 0) 3 credits
Structure and functions of natural ecosystems are simulated by models in a systems analysis approach to ecological problems. Prerequisite: BIOL 347, 381 or 485; a course in calculus.

713 TOPICS IN ECOLOGY (3 + 0) 3 credits
Critical analysis of selected ecological topics. Offered on a continuing basis; topics and instructors vary. Maximum of 6 credits. Prerequisite: BIOL 212.

717 SEMINAR IN ARID LANDS ECOLOGY (2 + 0) 2 credits
Presentation and analysis of original research by students, faculty and research guests on a variety of ecological topics related to arid lands. Maximum of 4 credits.

720 INSECT ECOLOGY (3 + 0) 3 credits
(See IPM 720 for description.)

760 VERTEBRATE REPRODUCTIVE BIOLOGY (3 + 0) 3 credits
Current research on morphology and physiology of reproductive systems in vertebrates, including reproductive cycles and their regulatory mechanisms. Prerequisite: BIOL 364, 366, 386 or equivalent courses.

762 ZOOLOGICAL SYMBIOSIS (3 + 0) 3 credits
Physiological and ecological study of symbiotic relationships among animals.

764 CURRENT RESEARCH IN DEVELOPMENTAL BIOLOGY (3 + 0) 3 credits
Review and discussion of recent literature concerned primarily with experimental analysis of problems in developmental biology.

766 UTERUS, PLACENTA, AND FETUS (3 + 0) 3 credits
Fetal-maternal association which exists during the intrauterine development of viviparous vertebrates.

769 CURRENT TOPICS IN ANIMAL PHYSIOLOGY (3 + 0) 3 credits
Selected topics dealing with current research in animal physiology. Subjects considered will depend on student interest. Maximum of 6 credits.

776-777 ADVANCED ORNITHOLOGY (2 + 3) 3 credits each
Recent developments in avian biology as described by current ornithological literature. The laboratory consists of an original research problem by each individual. Prerequisite: an introductory course in ornithology or equivalent.

781 ADVANCED ANIMAL ECOLOGY (2 + 3) 3 credits
Selected topics in physiological, community and ecosystem ecology in conjunction with related topics in bioenergetics. Prerequisite: BIOL 212, 381 or equivalent.

782 ADVANCED POPULATION ECOLOGY (2 + 3) 3 credits
Seminars and group or individual research projects in current problems of population ecology. Prerequisite: BIOL 381, 485 or equivalent.

783 ADVANCED WILDLIFE ECOLOGY (2 or 3 + 0) 2 or 3 credits
Seminars and/or lectures in current problems of wildlife ecology. Emphasis on current literature. Prerequisite: BIOL 212 or 381 or equivalent. Credit hours determined by department.

792 SPECIAL PROBLEMS 1 to 3 credits
Independent study or research in selected graduate-level topics in biology. Maximum of 6 credits.

794 COLLOQUIA (1 + 0) 1 credit *S/U only*
Presentation of original research by visiting scientists, UNS faculty, and graduate students completing masters and doctoral degrees. Maximum of 2 credits for masters or 4 credits for Ph.D.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

BUSINESS ADMINISTRATION (B A)

480, 680 SMALL BUSINESS INSTITUTE (SBI) (1 + 6) 3 credits
Students provide management assistance counseling to the small business community for qualified cases designated by the U.S. Small Business Administration.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

700 BUSINESS STATISTICS (3 + 0) 3 credits
Statistical inference and hypothesis testing; multivariate regression and analysis of variance; emphasis on applied methods and computer applications.

701 OPERATIONS MANAGEMENT AND RESEARCH (3 + 0) 3 credits
Quantitative methods and models for decision making. Topics include linear programming, dynamic programming, plant layout, quality control, line balancing, inventory models, and simulation. Prerequisite: B A 700.

705 RESEARCH DESIGN AND ANALYSIS (3 + 0) 3 credits
Topics include experimental design, theory of sampling and sampling error, instrument design, data collection, non-parametric statistics, discriminant analysis, conjoint measurement, and factor analysis. Prerequisite: completion of Tier I.

706 QUANTITATIVE METHODS AND ECONOMETRICS (3 + 0) 3 credits
Advanced techniques for analysis of time series and cross sectional data. Topics include time series modeling, distributed lags, simultaneous equation models, forecasting, Logit/Probit models. Prerequisite: completion of Tier I.

710 CONCEPTS OF FINANCIAL AND MANAGERIAL ACCOUNTING (3 + 0) 3 credits
Basic structure of accounting, income determination, asset valuation, liability recognition, equity accounting, cost behavior analysis, and budgeting procedures.

711 ACCOUNTING FOR MANAGEMENT PLANNING AND CONTROL (3 + 0) 3 credits
Decision making uses of accounting information in national and international management. Prerequisite: completion of Tier I.

719 SEMINAR IN ACCOUNTING (3 + 0) 3 credits
Contemporary accounting literature and problems. Maximum of 6 credits. Prerequisite: B A 710.

720 MANAGEMENT AND THE BEHAVIORAL SCIENCES (3 + 0) 3 credits
Survey of behavioral science concepts needed to understand individual and group behavior in organizations. Psychological and sociological research findings are applied to models of change. Special attention is given to the interaction of the structural, technological and human resource components necessary to formal organizations.

721 MANAGEMENT THEORY AND ORGANIZATIONAL DEVELOPMENT (3 + 0) 3 credits
Strategies for studying organizations, organizational structure and design, the impact of the environment and related management problems. Examination of the functions of management from classical and behavioral viewpoints. Domestic and international cases. Prerequisite: completion of Tier I unless enrolled in an approved joint-degree program.

729 SEMINAR IN MANAGEMENT (3 + 0) 3 credits
Selected topics in management. Maximum of 6 credits. Prerequisite: B A 720.

730 ECONOMICS OF THE FIRM (3 + 0) 3 credits
Economic analysis of the business firm, particularly with respect to price, output and investment decisions; the effect of regulatory and business policy on business firm behavior.

740 FINANCIAL MARKETS AND THE ECONOMY (3 + 0) 3 credits
Interest rates, regulatory policy and financial markets, monetary/fiscal policy and financial markets, exchange rates, and international finance and policy coordination. Prerequisite: completion of Tier I.

741 FINANCIAL MANAGEMENT AND POLICY (3 + 0) 3 credits
Valuation of the firm, capital investment decisions, risk and return, sources of funds, capital structure, cost of capital, financing and dividend policy, liquidity management, financial analysis, planning and control. Prerequisite: B A 700, 710.

742 FINANCIAL MANAGEMENT THEORY AND PRACTICE (3 + 0) 3 credits
Theory of financial management with applications to problems of financial managers through analysis and discussion of case problems. Domestic and international cases. Prerequisite: completion of Tier I.

749 SEMINAR IN FINANCE (3 + 0) 3 credits
Selected topics in finance. Maximum of 6 credits. Prerequisite: B A 741.

750 COMPUTER INFORMATION SYSTEMS FOR MANAGEMENT (3 + 0) 3 credits
Management of computer-based information systems in organizations. Selection of computer hardware and software, system management, decision support systems, staffing, budgeting and implementation.

760 MARKETING MANAGEMENT (3 + 0) 3 credits
Analysis of the firm's decision-making procedures in the areas of market measurement, product development, pricing, promotion and distribution. The development of the marketing mix from a management perspective.

761 ADVANCED MARKETING MANAGEMENT (3 + 0) 3 credits
Problem-solving and decision-making from the viewpoint of the marketing executive; national and international perspective. Prerequisite: completion of Tier I.

769 SEMINAR IN MARKETING (3 + 0) 3 credits
Selected topics in marketing. Maximum of 6 credits. Prerequisite: B A 760.

770 LEGAL ENVIRONMENT OF BUSINESS (3 + 0) 3 credits
Role of legal rules in the business environment, including property, contracts, corporations, bankruptcy and their regulation by commercial codes, legislation and litigation.

780 BUSINESS AND PUBLIC POLICY (3 + 0) 3 credits
Relationship of public policy both nationally and internationally to business organizations. Development, current status and future outlook of specific public policy issues are considered. (Same as EC 780.)

781 STRATEGIC MANAGEMENT AND POLICY (3 + 0) 3 credits
Management of strategy and policy in the business enterprise. Strategic management process and systematic analysis of complex organization-wide issues faced by general management. Case studies both national and international. Prerequisite: completion of 15 program credits beyond Tier I, including B A 721, 742, 761.

791 SPECIAL TOPICS 1 to 3 credits
Advanced study in selected topics. Maximum of 6 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Advanced study and research in selected topics. Requires selecting topic, design of experimental approach and derivating specific conclusions. Maximum of 6 credits. Prerequisite: completion of Tier I or approval of adviser.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*
Comprehensive examinations will no longer be offered after May 1990.

797 THESIS 1 to 6 credits

CELL AND MOLECULAR BIOLOGY (CMB)

701, 702, 703 LABORATORY PRACTICUM I, II, III (0 + 9) 3 credits
Intensive laboratory experience in molecular biology research methods. Written reports on each research project required. Prerequisite: B CH 400.

790 GRADUATE SEMINAR (1 + 0) 1 credit *S/U only*
Reports by students on topics of interest in cell and molecular biology. For cell and molecular biology majors only. Maximum of 2 credits.

793 INDEPENDENT STUDY 1 to 6 credits
Prerequisite: cell and molecular biology majors only.

794 COLLOQUIM GENE REGULATION (1 + 0) 1 credit
Presentation and analysis or original research in (a) gene regulation, (b) virology, (c) molecular biology methodology, (d) neoplasia, (e) hormone and drug receptors, (f) immunology. Maximum of 6 credits. For cell and molecular biology majors or advance approval.

797 THESIS 1 to 6 credits
For cell and molecular biology majors in the master's program only.

799 DISSERTATION 1 to 24 credits
For cell and molecular biology majors in the doctoral program only.

CHEMICAL ENGINEERING (CH E)

101 INDUSTRY ORIENTATION LECTURES (1 + 0) 1 credit
Introduction to practices and careers in modern process engineering. Field trip required.

103 COMPUTER APPLICATIONS (2 + 0) 2 credits
Elementary theory and techniques used in solving chemical engineering problems on the digital computer using the structured FORTRAN-77 programming language. Use of the UNIX operating system is included. Prerequisite: MATH 215. (Same as METE 103).

232 PRINCIPLES OF METALLURGICAL AND CHEMICAL ENGINEERING (3 + 0) 3 credits
(See METE 232 for description.)

361 THERMODYNAMICS (4 + 0) 4 credits
Thermodynamic principles and their application to problems involving physical and chemical changes. Prerequisite: MATH 217, CH E 232.

372 FLUID MECHANICS LABORATORY (0 + 3) 1 credit
Experiments emphasizing fluid flow equipment and operations of chemical engineering. Practice in technical report writing. Corequisite: CH E 373.

373 FLUID MECHANICS (3 + 0) 3 credits
Fundamentals of momentum transport, incompressible and compressible flow, elements of non-Newtonian flow of fluids through commonly used chemical and metallurgical process equipment with applications to design. Prerequisite: CH E 232, MATH 320 or equivalent. (Same as METE 373.)

410 EXTRACTIVE METALLURGY I — PYROMETALLURGY (3 + 0) 3 credits
(See METE 410 for description.)

423 SURFACE CHEMISTRY IN MINERALS (3 + 0) 3 credits
(See METE 423 for description.)

434, 634 REAL TIME COMPUTING SYSTEMS (3 + 0) 3 credits
Principles of real time computing with applications to process control and laboratory data acquisition. Introduction to real time languages and operating systems. A number of computing projects are to be completed for credit using laboratory hardware and software. (Same as E E 434.)

440, 640 CHEMICAL REACTOR DESIGN (3 + 0) 3 credits
Reaction rates and the factors controlling them. Design of reactors for chemical processing is emphasized. Prerequisite: CH E 232, MATH 320, CHEM 353.

441 HEAT TRANSFER LABORATORY (0 + 3) 1 credit
Experiments emphasizing heat transfer equipment and operations of chemical engineering. Provides practice in technical report writing. Corequisite: CH E 484.

442 MASS TRANSFER LABORATORY (0 + 3) 1 credit
Quantitative experiments emphasizing mass transfer unit operations commonly employed in chemical industries. Corequisite: CH E 493.

443 INDUSTRIAL INSTRUMENTATION (2 + 3) 3 credits
Analysis and specification of industrial instrumentation systems; elements of process control strategies and analysis. Experiments on industrial instruments and final control elements. Computer use in data logging. Prerequisite: CH E 373.

450 TECHNIQUES OF PROCESS DESIGN AND ECONOMICS (3 + 0) 3 credits
Principles of chemical engineering process design. Economics and organization of process design, process synthesis, flow sheets, heat and mass balances, precedence ordering, computer and optimization techniques applied to design. Prerequisite: CH E 103. Corequisite: CH E 493. (Same as METE 450.)

451, 651 CONTROL OF PROCESS SYSTEMS (3 + 0) 3 credits
Modeling and control of chemical and metallurgical processes, introduction to digital and analog process control, process control techniques and practices. Prerequisite: CH E 493.

462, 662 THERMODYNAMICS OF IRREVERSIBLE, PROCESSES (3 + 0) 3 credits
(See METE 462 for description.)

470 PROCESS EQUIPMENT DESIGN (3 + 0) 3 credits
Design methods for chemical engineering process equipment with emphasis on fluid mechanics, heat and mass transfer systems Prerequisite: CH E 450.

482 DESIGN PROJECT (1 + 6) 3 credits
Individual projects in the design of processes and plant components. Prerequisite: CH E 470. (Same as METE 482.)

484, 684 HEAT TRANSFER (3 + 0) 3 credits
Chemical engineering heat transfer with applications to design. Fundamentals of thermal transport, steady and unsteady state thermal conduction, convection and radiant heat exchange with applications to thermal recuperators and regenerators, computer methods in design. Corequisite: CH E 373. (Same as METE 484.)

485 COMPUTER SOLUTIONS TO CHEMICAL AND METALLURGICAL ENGINEERING PROBLEMS (3 + 0) 3 credits
Theory and techniques of FORTRAN 77 used in programming chemical and metallurgical engineering problems encountered in industry and research. Prerequisite: CH E 103. Corequisite: CH E 493.

493, 693 MASS TRANSFER (3 + 0) 3 credits
Diffusional processes, mass transfer coefficients, multiphase equilibris; design and specification of gas-liquid, liguid-liquid and solid-liquid operations; single and multistage operations. Prerequisite: CH E 484. (Same as METE 493, 693).

494, 694 EQUILIBRIUM STAGE OPERATIONS (3 + 0) 3 credits
Basic concepts and calculation methods required for the design of continuous and batch stage-wise contacting devices. Prerequisite: CH E 493.

495 SPECIAL PROBLEMS 1 to 3 credits
Individual problems in chemical engineering. Maximum of 6 credits.

660 FLUID PHASE EQUILIBRIA (3 + 0) 3 credits
Applications and synthesis of thermodynamics and physical chemistry for the solution of phase equilibrium problems in chemical engineering. Pretequisite: CH E 361, MATH 320 or M E 300.

675 TRANSPORT PHENOMENA (3 + 0) 3 credits
In-depth development of the basic concepts and equations for momentum, heat, and mass transfer systems. Extensive problem solving of fundamental and practical natures. Prerequisite: CH E 373, 484, 493 or equivalent.

686 HETEROGENEOUS CATALYSIS (3 + 0) 3 credits
Fundamental theories and applications of heterogeneous catalysis; adsorption isotherms, catalyst characterization, mass transfer limitations on reaction rates, development of kinetics and reaction models. Prerequisite: CHEM 354.

CHEMISTRY (CHEM)

Laboratory courses require special expenses for materials and equipment in addition to regular registration fees.

101 GENERAL CHEMISTRY (3 + 3 or 4 + 3) 4 or 5 credits
Fundamental principles of chemistry including nomenclature, atomic structure, chemical bonding, molecular structure, states of matter and solutions. Students with no high school chemistry or with Math ACT scores 18 or less should register for 5 credits which includes recitation.

102 GENERAL CHEMISTRY (3 + 3 or 4 + 3) 4 or 5 credits
Fundamental principles of chemistry, properties and fuses of the common metals, their compounds, elementary chemistry of carbon and introductory qualitative and quantitative analysis. Students with no high school chemistry or with mathematics ACT scores of 20 or less should register for 5 credits, which includes recitation. Prerequisite: CHEM 101.

105 FUNDAMENTALS OF CHEMISTRY (3 + 0) 3 credits
Introduction to chemistry. Structure and properties of matter. Role of chemistry in life processes, man's environment, and society. Prerequisite: MATH 105.

110 CHEMISTRY OF MAN'S ENVIRONMENT (3 + 0) 3 credits
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.

142 INTRODUCTORY ORGANIC CHEMISTRY (3 + 0) 3 credits
Fundamental principles of carbon chemistry. Prerequisite: CHEM 101 or 201. Credit not allowed in both CHEM 142, 343.

143 INTRODUCTORY ORGANIC CHEMISTRY LABORATORY (0 + 3) 1 credit
Techniques employed in the preparation, separation and identification of organic compounds. Prerequisite or corequisite: CHEM 142.

201 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS (3 + 3) 4 credits
Fundamental principles of chemistry including stoichiometry, atomic structure, periodic table, chemical bonding, molecular structure, kinetic theory of gases, gas laws, solutions, colligative properties, equilibrium, electrochemistry. Prerequisite: 28 or above on the Math ACT examination and/or a year of high school chemistry. Credit allowed in only one of the following: CHEM 101, 201.

202 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS (3 + 3) 4 credits
Continuation of CHEM 201 including thermodynamics, thermochemistry, redox systems, chemical kinetics, nuclear chemistry, metals and non-metals, coordination compounds, qualitative and quantitative analysis, organic chemistry, biochemistry. Prerequisite: CHEM 201, or a grade of A or B in CHEM 101. Credit allowed in only one of the following: CHEM 102, 202.

330 ANALYTICAL CHEMISTRY (2 + 6) 4 credits
Principles and techniques of quantitative chemical analysis including an introduction to instrumental methods. Prerequisite: CHEM 102 or 202.

343 ORGANIC CHEMISTRY (3 + 0) 3 credits
Integrated treatment of aliphatic compounds embracing nomenclature, structure, general methods of preparation and a mechanistic interpretation of typical reactions. Prerequisite: CHEM 102 or 202.

344 ORGANIC CHEMISTRY (3 + 0) 3 credits
Continuation of CHEM 343 including a more advanced treatment of synthetic procedures. Prerequisite: CHEM 343.

345 ORGANIC CHEMISTRY LABORATORY (0 + 6) 2 credits
Introduction to laboratory techniques, analytical and preparative methods, identification of organic compounds. Prerequisite: CHEM 343. Corequisite: CHEM 344. Credit allowed in only one of the following: CHEM 345, 347.

347-348 LABORATORY TECHNIQUES OF ORGANIC CHEMISTRY (0 + 6) 2 credits each
Develops laboratory skills and an understanding of the techniques and principles involved in the preparation, separation and identification of organic compounds. Prerequisite or corequisite: CHEM 343-344. Laboratories must be taken in sequence. Credit allowed in only one of the following: CHEM 345, 347.

349 CHEMICAL APPLICATIONS OF SPECTROSCOPY (2 + 0) 2 credits
Interpretation of chemical spectra with an emphasis on applications to structure determination. Prerequisite: CHEM 344, 345 or 344, 348.

353 PHYSICAL CHEMISTRY I (3 + 0) 3 credits
First semester of a two-semester course on fundamental principles. Second course is CHEM 354 or 357. Prerequisite: two years of college chemistry; PHYS 151-152 or 201-202; MATH 216.

354 PHYSICAL CHEMISTRY II (3 + 0) 3 credits
Continuation of CHEM 353 for physical sciences and engineering majors. Prerequisite: CHEM 353.

355 PHYSICAL CHEMISTRY LABORATORY (0 + 6) 2 credits
Training in physico-chemical laboratory techniques provided by experimental verification of the principles of physical chemistry. Prerequisite or corequisite: CHEM 353.

357 BIOPHYSICAL CHEMISTRY (3 + 0) 3 credits
Continuation of CHEM 353 for biological science majors. Prerequisite: CHEM 353.

387 CHEMICAL LITERATURE AND UNDERGRADUATE COLLOQUIUM (1 + 0) 1 credit
Introduction to chemical information retrieval, includes oral and/or written reports. Recommended to be taken concurrently with CHEM 391 or CHEM 497.

391 SPECIAL PROBLEMS 1 to 3 credits
Laboratory and/or literature course giving training in a field not covered in scheduled courses. Maximum of 3 credits.

415, 615 ADVANCED INORGANIC CHEMISTRY (3 + 0) 3 credits
Atomic structure; types of bonding; periodic relationships between structure, physical properties, and reactivity of the elements; preparation and application of the elements and their compounds. Prerequisite: CHEM 354.

434, 634 INSTRUMENTAL ANALYSIS (2 + 3) 3 credits
Critical examination of the process of quantitative chemical measurement entailing a systematic treatment of instrument design and instrumental methods. Prerequisite or corequisite: CHEM 330, 354.

442, 642 ADVANCED ORGANIC CHEMISTRY (3 + 0) 3 credits
Organic reactions not generally covered in introductory courses in organic chemistry. Emphasis on both synthetic utility and reaction mechanisms. Prerequisite: CHEM 344, 354.

443, 643 MODERN METHODS OF ORGANIC ANALYSIS (2 + 3 or 6) 3 or 4 credits
Identification of unknown organic compounds by spectroscopic techniques (IR, NMR, UV, mass spectrometry) and wet laboratory methods; microtechniques; separations of mixtures (GLC, TLC, HPLC). Prerequisite: CHEM 344, 345 or 348.

450, 650 ADVANCED PHYSICAL CHEMISTRY (3 + 0) 3 credits
Selected topics (thermodynamics, kinetics, molecular structure, chemical statistics, etc.) at an intermediate level. Prerequisite: CHEM 354, 355, MATH 320 or equivalent.

451, 651 THE ELEMENTARY PHYSICAL CHEMISTRY OF MACROMOLECULES (3 + 0) 3 credits
Elementary physical chemistry and physical characterization methods applicable to synthetic and biological macromolecules in solution and in the bulk phase. Prerequisite or corequisite: CHEM 354 or 357.

456, 656 ADVANCED PHYSICAL CHEMISTRY LABORATORY (0 + 6) 2 credits
Interpretation of data from, and the basic theory behind, modern research instrumentation. Representative topics include optical spectroscopy, mass spectroscopy, and magnetic resonance. Prerequisite or corequisite: CHEM 354, 355.

461, 661 CHEMICAL SYNTHESIS (1 + 6) 3 credits
Advanced laboratory techniques used in inorganic and organic synthesis. Prerequisite: CHEM 345 or 348.

462, 662 POLYMER CHEMISTRY (3 + 0) 3 credits
Synthesis, characterization, morphology, bulk and solution properties of polymers; polymerization mechanisms. Prerequisite: CHEM 344, 354.

497 SENIOR PROBLEMS (0 + 6) 2 credits
Introduction to research methods using a problem chosen from inorganic, analytical, organic or physical chemistry. Problem director may be chosen by student. Prerequisite: three years of college chemistry. Maximum of 6 credits.

700 SUPERVISED TEACHING IN COLLEGE CHEMISTRY (1 + 0) 1 credit *S/U only*
Methods and creative approaches for teaching chemical science to undergraduates.

711 THEORETICAL INORGANIC CHEMISTRY (3 + 0) 3 credits
Atomic structure, chemical bonding and molecular structure; applications of group theory to inorganic spectroscopy. Prerequisite: CHEM 615.

712 THE LESS FAMILIAR ELEMENTS (3 + 0) 3 credits
Survey of the chemistry of the less familiar elements including the lanthanides and actinides with emphasis on periodic correlations. Prerequisite: CHEM 615.

713 ORGANOMETALLIC CHEMISTRY (3 + 0) 3 credits
Synthesis, properties and reactivity of organometallic compounds; applications to organic synthesis and homogeneous caralysis with an emphasis on mechanisms. Prerequisite: CHEM 615.

714 SPECIAL TOPICS IN INORGANIC CHEMISTRY (3 + 0) 3 credits
Selected topics of current interest. Prerequisite: CHEM 615. May be repeated nly in different subject areas to a maximum of 6 credits.

40 ADVANCED ORGANIC SYNTHESIS (3 + 0) 3 credits
urvey of reactions of value in synthesis. Prerequisite: CHEM 642.

741 ADVANCED ORGANIC STRUCTURE ELUCIDATION (3 + 0) 3 credits
Methods used for structure elucidation. Prerequisite: CHEM 643 or equivalent.

742 THEORETICAL ORGANIC CHEMISTRY (3 + 0) 3 credits
Elementary quantum mechanics including molecular orbital theory, Huckel heory, aromaticity, and orbital symmetry rules; molecular mechanics calculaions; reaction mechanisms. Prerequisite: CHEM 642.

743 SPECIAL TOPICS IN ORGANIC CHEMISTRY (3 + 0) 3 credits
Topics of current interest in organic chemistry. May be repeated only in different subject areas to a maximum of 6 credits. Prerequisite: CHEM 642.

744 STEREOCHEMISTRY AND CONFORMATIONAL ANALYSIS (3 + 0) 3 credits
Stereoisomerism, molecular symmetry, chirality, optical activity, torsional isomerism, conformations of cyclic and acyclic molecules, stereoselectivity and stereospecificity, chiral discrimination, stereochemical methods. Prerequisite: CHEM 642.

745 CHEMISTRY OF NATURAL PRODUCTS (3 + 0) 3 credits
Chemistry of naturally occurring compounds with emphasis on isolation, structure determination, synthesis, biogenesis and physiological importance. Prerequisite: CHEM 642.

750 THEORETICAL PHYSICAL CHEMISTRY (3 + 0) 3 credits
Thermodynamics, kinetic theory of gases, quantum theory, statistical mechanics and related subjects. Prerequisite: CHEM 650 or equivalent.

751 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (3 + 0) 3 credits
Selected topics of current interest. Prerequisite: CHEM 650 or 750. May be repeated only in different subject areas to a maximum of 6 credits.

752 CHEMICAL KINETICS (3 + 0) 3 credits
Rate processes, factors influencing reaction rates and the correlation of kinetics and mechanisms of reaction. Prerequisite: CHEM 650 or equivalent.

753 PHYSICAL CHEMISTRY OF MACROMOLECULES (3 + 0) 3 credits
Advanced considerations in polymer chain statistics, structural and dynamical models. Solution and thermodynamic properties of nonelectrolyte and polyelectrolyte polymers. Advanced characterization methods. Prerequisite: CHEM 650.

755 STATISTICAL THERMODYNAMICS (3 + 0) 3 credits
Molecular approach to the study of fundamental thermodynamic energy relationships. Prerequisite: CHEM 750.

757 QUANTUM CHEMISTRY (3 + 0) 3 credits
Intensive study of the general aspects of quantum mechanics and its application to chemistry. Prerequisite: CHEM 750.

790 SEMINAR (1 + 0) 1 credit
Maximum of 4 credits.

793 INDEPENDENT STUDIES 1 to 6 credits
Maximum of 12 credits.

794 COLLOQUIA (1 + 0) 1 credit *S/U only*
Presentation of original research in (a) inorganic chemistry, (b) organic, (c) physical. Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

171 LIFE SCIENCE CHEMISTRY I (3 + 3) 4 credits
172 LIFE SCIENCE CHEMISTRY II (3 + 3) 4 credits
250 PHYSICAL PRINCIPLES OF CHEMISTRY (3 + 0) 3 credits
271 PHYSIOLOGICAL CHEMISTRY (3 + 0 or 3) 3 or 4 credits
291 SCIENTIFIC GLASSBLOWING (0 + 3) 1 credit
435, 635 RADIOCHEMISTRY (2 + 0 or 3) 2 or 3 credits
471-472, 671-672 GENERAL BIOCHEMISTRY (3 + 0) 3 credits each
473-474, 673-674 GENERAL BIOCHEMISTRY LABORATORY (0 + 6) 2 credits each
771-772 ADVANCED BIOCHEMISTRY (3 + 0) 3 credits each
773 EXPERIMENTAL TECHNIQUES IN BIOCHEMISTRY (1 + 6) 3 credits
774 SPECIAL TOPICS IN BIOCHEMISTRY (3 + 0) 3 credits

CIVIL ENGINEERING (C E)

101 ENGINEERING GRAPHICS (0 + 6) 2 credits
Drafting and graphical presentation of engineering material. Use of graphs and maps. Aspects of descriptive geometry. Introduction to computer aided design. Prerequisite: Trigonometry.

140 INTRODUCTION TO CIVIL ENGINEERING (1 + 0) 1 credit
History and overview of civil engineering including: environmental, geotechnical, materials, structural, transportation and water resources engineering.

141 ENGINEERING MEASUREMENTS (2 + 3) 3 credits
Introduction to the theory of engineering measurements and instruments used. Introduction to the theory of errors, statistics, field astronomy and topographic surveying. Prerequisite: trigonometry.

150, 250, 350, 450 SUMMER COOPERATIVE TRAINING (1 + 0) 1 credit
Preparation of written reports based on summer cooperative program assignments. Required of all students in civil engineering cooperative training programs.

204 TECHNOLOGY, ENVIRONMENT AND SOCIETY (3 + 0) 3 credits
Introduction to scientific principles required for enhancement of quality of environment with emphasis on the role of technology and its interrelationships with society. Prerequisite: ENGL 101.

241 STATICS (3 + 0) 3 credits
Static force systems. Topics include resolution and composition of forces, equilibrium of force systems, friction, centroids, moments of inertia, cables, beams, fluid statics, work. Prerequisite: PHYS 201. Corequisite: MATH 115. (Same as M E 241.)

243 COMPUTER PROGRAMMING FOR CIVIL ENGINEERS (2 + 3) 3 credits
Use of computers in civil engineering. Programming principles of FORTRAN and BASIC. Applications. Prerequisite: C E 140, MATH 215.

246 CONSTRUCTION MATERIALS (3 + 0) 3 credits
Consideration of metals, wood, agregate, portland cement concrete and asphalt concrete. Prerequisite: C E 241.

360 SEMINAR (1 + 0) 1 credit
Preparation of written reports and/or delivery of oral presentations. Guest lectures. Maximum of 3 credits.

364 ENGINEERING HYDROLOGY (2 + 0) 2 credits
Fundamental principles of hydrology for engineers. Quantitative hydrology; application of statistics to prediction of runoff; ground water flow. Corequisite: M E 367; C E 389.

366 HIGHWAY/TRANSPORTATION ENGINEERING (3 + 0) 3 credits
Engineering problems encountered in the planning and design of highway transportation facilities. Prerequisite: C E 141, 246. Corequisite: C E 388.

368 FLUID MECHANICS LABORATORY (0 + 3) 1 credit
Exemplifies the principles studied in M E 367. Prerequisite or corequisite: M E 367.

369 CONCRETE AND ASPHALT LABORATORY (0 + 3) 1 credit
Physical properties of aggregate, portland cement, portland cement concrete, asphalt and asphalt concrete. Prerequisite: C E 246.

372 STRENGTH OF MATERIALS (3 + 0) 3 credits
Effects of axial loads, temperature changes, torsion and bending on structural elements; analysis of stress and strain, beam deflections, introduction to buckling and statically indeterminate structures. Prerequisite: C E 241.

374 METALS AND TIMBER LABORATORY (0 + 3) 1 credit
Physical properties or metals and timber relevant to civil engineering practice. Prerequisite: C E 246, 372.

381 STRUCTURAL ANALYSIS I (3 + 0) 3 credits
Development of the principles and techniques of structural mechanics and their application to the analysis of statically determinate and indeterminate structures. Prerequisite: C E 372.

388 ENGINEERING ECONOMY (2 + 0) 2 credits
Consideration of various economic calculations such as present worth, benefit-cost and rate of return analyses in engineering decision making.

389 PROBABILITY AND STATISTICS FOR CIVIL ENGINEERS (2 + 0) 2 credits
Statistics, probability distributions and regression analysis with civil engineering applications. Prerequisite: MATH 217.

390 WATER AND WASTE TREATMENT (3 + 0) 3 credits
Water quality and contaminant characteristics; introduction to water treatment design and hazardous waste control. Prerequisite: CHEM 101. Corequisite: M E 367.

410, 610 HYDRAULICS OF OPEN CHANNELS (3 + 0) 3 credits
Advanced study of the flow of water through open channels. Prerequisite: M E 367.

411, 611 ENVIRONMENTAL LAW (3 + 0) 3 credits
Examination of current federal laws, rules and regulations concerning the environment. Emphasis on court decisions and interpretations of the law. (Same as RWF 411.)

415, 615 WATER RIGHTS (3 + 0) 3 credits
Riparian doctrine and appropriation doctrine along with some of the federal aspects of water rights. Study to include both statutory law and case law.

420, 620 ADVANCED PORTLAND CEMENT CONCRETE (2 + 3) 3 credits
Detailed consideration of concrete mix design; study of the effects of aggregate characteristics, mix design variables, admistures and exposure of all types upon concrete properties; quality control and special problems related to use. Prerequisite: C E 369.

429, 629 TIMBER STRUCTURES (3 + 0) 3 credits
Fundamentals of design of timber structures and application to simple structures. Prerequisite: C E 381.

431, 631 PAVEMENT DESIGN, REHABILITATION AND MAINTENANCE (3 + 0) 3 credits
Stresses in flexible and rigid pavements, materials characterization, overlay design, interlayers, seals, maintenance materials, selection of rehabilitation alternatives, life cycle costing, pavement management. Prerequisite: C E 366, 369.

460, 660 CONSTRUCTION ENGINEERING (3 + 0) 3 credits
Construction practices and methods; job planning and scheduling; selection of equipment. Problems of management and related topics. Prerequisite: C E 366.

461 FORM AND FALSEWORK DESIGN (2 + 0) 2 credits
Planning, materials, loads, pressures, design, erection, and use for concrete formwork. Prerequisite: C E 429.

462 CONSTRUCTION COST ESTIMATING (3 + 0) 3 credits
Quantity take-off, labor cost, material cost, equipment costs, subcontracts, overhead costs, profit, and bidding. Corequisite: C E 460.

463 PROJECT SCHEDULING (3 + 0) 3 credits
Project planning, order of project completion, scheduling basics, types of schedules, schedule outputs and reports, project progress, special topics.

464 CONSTRUCTION LAW (2 + 0) 2 credits
Bids and bid mistakes, contracts and contract documents, performance, liens, bonds, and arbitration vs. litigation, including case studies.

465 CONSTRUCTION COST ACCOUNTING (2 + 0) 2 credits
Direct material costs, direct labor costs, other direct costs, indirect costs, progress billings, profit on jobs, profitability and economic survival. Prerequisite: ACC 201.

466 CONSTRUCTION MANAGEMENT (2 + 0) 2 credits
On-site productivity, productivity climate, system productivity, and safety issues. Prerequisite: C E 388.

471 MATHEMATICAL METHODS IN CIVIL ENGINEERING (1 + 0 per credit) 1 to 3 credits
Application of the principles of higher mathematics to typical problems in the analysis and design of civil engineering projects. Prerequisite: C E 243, 372, M E 367, M E 300.

479, 679 EARTHQUAKE ENGINEERING (3 + 0) 3 credits
(See G E 479 for description.)

482, 682 ENVIRONMENTAL MICROBIOLOGY (2 + 3) 3 credits
Fundamental aspects of microbiology and biochemistry as applied to environmental problems. Includes experimental approach to understanding fundamentals of microbiology including morphology, identification, metabolism, growth, and water quality parameters. Prerequisite: C E 390.

483, 683 STRUCTURAL ANALYSIS II (3 + 0) 3 credits
Classical methods of structural analysis for static and dynamic loads and structural stability including matrix formulation for application of electronic computers. Prerequisite: C E 381.

484, 684 STRUCTURAL STEEL DESIGN (3 + 0) 3 credits
Working stress design of steel structures including beams, columns, beam-columns, tension members and plate girders; welded and bolted connections. Introduction to load-resistance factor design. Prerequisite: C E 381.

485, 685 REINFORCED CONCRETE DESIGN I (3 + 0) 3 credits
Analysis and design of reinforced concrete members by the strength method and an introduction to the working stress method. Prerequisite: C E 369, 381.

486, 686 REINFORCED CONCRETE DESIGN II (3 + 0) 3 credits
Continuation of C E 485 with emphasis upon the total design of reinforced concrete structures. Prerequisite: C E 485.

487, 687 COMPUTER-AIDED DESIGN OF STRUCTURES (3 + 0) 3 credits
Application of microcomputer and main frame software in complete design of reinforced concrete, steel and timber structures. Prerequisite: C E 483, 484, 485.

489, 689 WATER RESOURCES ENGINEERING I (3 + 0) 3 credits
Principles for the design of municipal water systems and wastewater collection systems; introduction to water reuse and water conservation. Prerequisite: C E 364, 390.

490, 690 WATER RESOURCES ENGINEERING II (3 + 0) 3 credits
Conventional engineering economic analysis of multipurpose water resources projects and a study of components of systems which provide for principal beneficial uses of water. Prerequisite: C E 489.

491, 691 CONTRACTS, SPECIFICATIONS (2 + 0) 2 credits
Elementary presentation of engineering aspects of contracts, specifications, and supporting documents for materials and services associated with construction of private and public works. Prerequisite: senior standing in engineering.

492, 692 FUNDAMENTALS OF GEOTECHNICAL ENGINEERING (3 + 0 or 3) 3 or 4 credits
Use of soil mechanics in engineering practice: weight-volume relationships and

soil compaction; permeability and seepage; consolidation and settlement; shear strength and its application to lateral earth pressure, bearing capacity and slope stability. Prerequisite: C E 372.

493, 693 GEOTECHNICAL ENGINEERING: FOUNDATIONS (3 + 0) 3 credits
Geotechnical analysis of footings, mats, piers, piles and related fill and excavation operations. Consideration of stress distribution, settlement, time rate of settlement and load capacity. Prerequisite: C E 492.

494, 694 GEOTECHNICAL ENGINEERING: RETAINING STRUCTURES (3 + 0) 3 credits
Application of geotechnical theory to analysis of rigid and flexible earth retaining structures: retaining wall, anchored bulkhead, braced cut, tie-back cut, slurry trench wall, reinforced earth wall and cofferdam. Prerequisite: C E 492.

495 SPECIAL PROJECTS 1 to 3 credits
Study and/or experimentation in areas of special interest to the student. Maximum of 6 credits.

497, 697 INTRODUCTION TO ENVIRONMENTAL QUALITY AND ANALYSIS (2 + 3) 3 credits
Analytical and physical chemistry and microbiology applied to water quality and hazardous waste control. Laboratory includes gravimetric, electrometric, spectrophotometric, chromatographic and microbiological analyses. Prerequisite: BIOL 101, CHEM 102.

498, 698 WATER QUALITY MANAGEMENT (3 + 0) 3 credits
Water quality criteria for beneficial uses and methodology for establishing water quality standards. Changes in water quality attributes through beneficial uses and through natural and engineered systems. Systems analysis applications to models to provide optimal water quality management for selected water resources systems. Prerequisite: C E 390.

499, 699 HAZARDOUS WASTE MANAGEMENT AND CONTROL (3 + 0) 3 credits
Hazardous waste sources, regulations, chemodynamics and toxicology; site assessment and pathway receptor analyses; treatment processes for spills, ultimate disposal and uncontrolled waste sites. Prerequisite: CHEM 102, C E 390.

704 APPLIED FINITE ELEMENT ANALYSIS (3 + 0) 3 credits
Basic concepts, formulation and application of finite element techniques for numerical solution of problems in structural and continuum mechanics, geotechnical and water resources engineering. Prerequisite: C E 243, M E 300 or MATH 320.

720 ADVANCED STRUCTURAL ANALYSIS AND DESIGN I (3 + 1) 3 credits
Advanced methods and problems in structural analysis and design. Prerequisite: C E 483, 484, 485.

721 ADVANCED STRUCTURAL ANALYSIS AND DESIGN II (3 + 0) 3 credits
Continuation of C E 720. Prerequisite: C E 720.

722 PLASTIC DESIGN IN STEEL (2 + 0) 2 credits
Design and behavior of structural steel frames in the inelastic stress range. Prerequisite: C E 381, 483, 484.

723 ADVANCED REINFORCED CONCRETE (3 + 0) 3 credits
Special problems in reinforced concrete. Prerequisite: C E 483, 486.

724 APPLIED ELASTICITY I (3 + 0) 3 credits
Development of three-dimensional equations of elasticity, analysis of stress and strain, compatibility, stress-strain relations, plane stress, plane strain, and torsion. A study of the stresses and displacements in rectangular, circular, and ring-shaped plates and cylinders. Prerequisite: C E 372 and MATH 320 or M E 300.

725 APPLIED ELASTICITY II (3 + 0) 3 credits
Continuation of C E 724 with emphasis on the variation principles of mechanics including the principles of stationary potential and complimentary energy. Hamilton's principle and methods of Ritz and Galerkin. Prerequisite: C E 724.

726 THEORY OF PLATES AND SHELLS (3 + 0) 3 credits
Analysis of plates and shells by classical and numerical methods including the finite difference and finite element methods. Prerequisite: C E 372. Corequisite: C E 704.

727 MATRIX METHODS IN STRUCTURAL ANALYSIS (3 + 0) 3 credits
Formulation of displacement and force methods for structural systems using matrix techniques. Introduction to efficient computer methods in analysis of structures. Prerequisite: C E 483.

730 DYNAMICS OF STRUCTURES (3 + 0) 3 credits
Analysis of single and multidegree of freedom systems for time dependent loadings, with particular attention to earthquake excitation and response spectrum techniques. Prerequisite: C E 381.

731 ADVANCED DYNAMICS OF STRUCTURES (3 + 0) 3 credits
Advanced methods of analysis and design of structural systems subjected to dynamic loads. Elastic and inelastic analysis of single and multi-degree systems. Introduction to random vibration and Fourier transform methods. Design application to building, bridges and reservoirs. Prerequisite: C E 730.

732 BITUMINOUS MATERIALS AND MIXTURES (2 + 3) 3 credits
Physical and chemical properties of asphalts and agregates, design and construction of asphalt mixtures, skid resistance, and performance. Prerequisite: C E 246, 366, 369.

733 ADVANCED PAVEMENT DESIGN AND MANAGEMENT (3 + 0) 3 credits
1985 AASHTO design procedure; mechanistic design; pavement evaluation; in-situ testing and interpretation, visual surveys, failure criteria; pavement management systems; rehabilitation types and selection. Prerequisite: C E 431, 631.

734 SOIL STABILIZATION AND SITE IMPROVEMENT (3 + 0) 3 credits
Lime, portland cement and asphalt stabilization; use of pozzolans, sand drains, hydraulic fills, deep compaction, electro-osmosis, thermal stabilization, grouting, Prerequisite: C E 246, 366, 369.

741 GEOTECHNICAL ENGINEERING: SEEPAGE, SLOPES, EMBANKMENTS (3 + 0) 3 credits
Seepage effects and control; flow net. Stability of natural and man-made slopes under various loading conditions. Design and construction of earth dams and embankments. Prerequisite: C E 492.

742 ADVANCED SOIL MECHANICS (3 + 0) 3 credits
Advanced and theoretical treatment of soil stress-strain relationships, consolidation and shear-strength concepts. Prerequisite: C E 493 or 494.

743 ADVANCED SOIL MECHANICS LABORATORY (0 + 3) 1 credit
Advanced soil testing techniques used in geotechnical engineering. Prerequisite: C E 742.

745 GEOTECHNICAL EARTHQUAKE ENGINEERING (3 + 0) 3 credits
Dynamic soil properties, ground response analysis, soil-structure interaction, soil liquefaction, dynamic analysis of earth dams, settlement from earthquakes and dynamic lateral earth pressure. Prerequisite: C E 493 or 494, 730.

746 ADVANCED FOUNDATION ENGINEERING (3 to 4 + 0) 3 to 4 credits
Advanced topics dealing with shallow and deep foundations, including mat foundations, laterally loaded piles and culverts. Prerequisite: C E 493. Additional material dealing with machine foundation design requires prerequisite C E 745 for additional credit.

750 GRADUATE SEMINAR 1 to 3 credits
Study and discussion of important new developments in particular fields of civil engineering. Prerequisite: graduate standing in civil engineering.

751 BIOLOGICAL UNIT OPERATIONS (4 + 0) 4 credits
Process kinetics, theory, design and operation for fixed film and suspended growth erobic, anoxic and anaerobic biological processes. Prerequisite: C E 752.

752 PHYSICOCHEMICAL UNIT PROCESSES (4 + 0) 4 credits
Process kinetics, theory, design and operation for coagulation, flocculation, sedimentation, filtration, disinfection, oxidation, adsorption and membrane processes. Prerequisite: C E 390, 497.

754 UNIT OPERATIONS AND PROCESSES LABORATORY (1 + 6) 3 credits
Laboratory investigation of reactor hydraulics, coagulation, sedimentation, filtration, disinfection, adsorption and activated sludge. Corequisite: C E 753.

755 INDUSTRIAL WASTE TREATMENT (2 + 0) 2 credits
Theory, design and operation of pilot and full-scale systems for the control of aqueous industrial waste streams. Prerequisite: CHEM 142, C E 753.

756 ENVIRONMENTAL CHEMISTRY (3 + 0) 3 credits
Kinetics and thermodynamics applied to water, wastewater, and other environmental media including acid-base relationships, complexation, precipitation, and oxidation-reduction. Prerequisite: C E 497 or 498.

761 PLANNING AND SCHEDULING OF CONSTRUCTION PROJECTS (2 + 0) 2 credits
Planning, scheduling, and progress control of construction projects with emphasis on Critical Path Method, including network diagramming and calculations and resource leveling. Basics of the PERT system are investigated.

771 SPECIAL ENGINEERING PROBLEMS 1 to 3 credits
Specialized study in any of the subjects pertaining to civil engineering. Subject matter may be arranged after conference with staff members and administrative officers concerned. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Report of professional quality, based on engineering experience and independent study or investigation. May be required for completion of plan B, M.S. program.

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

244 CIVIL ENGINEERING II (2 + 3) 3 credits
342 ADVANCED SURVEYING (3 + 0) 3 credits
347 ENGINEERING REPORTS (1 + 0) 1 credit
373 STRENGTH OF MATERIALS LABORATORY (0 + 3) 3 credits
401, 601 CITY AND REGIONAL PLANNING I (2 + 3) 3 credits
402, 602 CITY AND REGIONAL PLANNING II (3 + 0) 3 credits
416, 616 EMINENT-DOMAIN LAW AND CONDEMNATION PROCEDURE (2 + 0) 2 credits
419, 619 SNOW AND ICE SCIENCE (2 + 0) 2 credits
451, 651 TRANSPORTATION ENGINEERING (3 + 0) 3 credits
452, 652 INTRODUCTION TO TRAFFIC ENGINEERING (2 + 3) 3 credits
473, 673 DECISION MAKING TECHNIQUES (3 + 0) 3 credits
703 AIRPORT PLANNING AND DESIGN (3 + 3) 3 credits
711 WATER RESOURCES SYSTEMS ANALYSIS (3 + 0) 3 credits
712 WATER RESOURCES PROJECTS (3 + 0) 3 credits
714 ADVANCED WATER RESOURCES TOPICS 1 to 4 credits
717 STATISTICAL METHODS IN HYDROLOGY (3 + 0) 3 credits
718 ADVANCED HYDROLOGY I (3 + 0) 3 credits
719 ADVANCED HYDROLOGY II 1 to 4 credits
728 EXPERIMENTAL STRESS ANALYSIS (2 + 3) 3 credits
753 AIR POLLUTION CONTROL 2 credits

CLINICAL LABORATORY SCIENCE (CLS)

111 MEDICAL TERMINOLOGY (1 + 0) 1 credit
Self-learning approach to terminology used in medical professions. Emphasis on understanding of word roots and building vocabulary.

161 MEDICAL LABORATORY PRINCIPLES I (1 + 0) 1 credit
Introduction to basic medical laboratory principles including urinalysis and other body fluids. Content areas deal with quality control, venipuncture, use of analytical equipment, laboratory safety, supplies and laboratoty records. Prerequisite: CHEM 101 or equivalent, MATH 115.

162 MEDICAL LABORATORY PRINCIPLES II (0 + 3) 1 credit
Laboratory and clinical applications in microscopy, analytical methods, venipuncture, quality control, urinalysis analysis of other body fluids. Corequisite: CLS 161.

215 INSTRUMENTATION (1 + 0) 1 credit
Basic principles of laboratory instrumentation including basic laboratory computer applications and electronics. Prerequisite: CLS 161, 162.

216 INSTRUMENTATION LABORATORY (0 + 3) 1 credit
Principles of clinical laboratory instrumentation. Prerequisite: CLS 161, 162.

221 PRINCIPLES OF DISEASE I (1 + 0) 1 credit
Mechanisms of disease production are correlated with anatomic structures, physiologic processes and cellular requirements of body systems. Corequisite: BIOL 262.

222 PRINCIPLES OF DISEASE II (1 + 0) 1 credit
Continuation of body systems not covered in CLS 221. Corequisite: BIOL 263.

241 CLINICAL CHEMISTRY (3 + 0) 3 credits
Basic principles of methodology in clinical chemistry by analyzing chemical substances in biological fluids. Prerequisite: CHEM 102 or equivalent, CLS 161, 162, 216.

242 APPLIED CLINICAL CHEMISTRY (0 + 9) 3 credits
Quantitative analysis of chemical components in biologic substances. Corequisite: CLS 241.

251 IMMUNOLOGY/IMMUNOHEMATOLOGY (2 + 0) 2 credits
Overview of the immune response with emphasis on serologic principles. Discussion of identification of blood group antigens and antibodies and their clinical significance in transfusion therapy. Prerequisite: CHEM 142.

252 APPLIED IMMUNOLOGY/IMMUNOHEMATOLOGY (0 + 6) 2 credits
Serological and immunohematological laboratory procedures; grouping, typing, compatibility testing, pregnancy testing, titers, cold agglutinins, quality control. Corequisite: CLS 251.

271 CLINICAL MICROBIOLOGY (2 + 0) 2 credits
Characteristics, medical significance and laboratory identification of clinically important bacteria. Prerequisite: CLS 161, 162.

272 APPLIED CLINICAL MICROBIOLOGY (0 + 9) 3 credits
Collecting and processing specimens; cultivation and identification of clinically important bacteria; staining methods; media preparation; safety measures; susceptibility testing. Corequisite: CLS 271.

281 PARASITOLOGY/MYCOLOGY/VIROLOGY (1 + 0) 1 credit
Characteristics, medical significance and laboratory identification of human parasites, fungi and viruses. Prerequisite: CLS 161, 162.

282 APPLIED PARASITOLOGY/MYCOLOGY (0 + 3) 1 credit
Specimen collection and processing; identification of parasites; cultivation and identification of medically significant fungi. Corequisite: CLS 281.

291 HEMATOLOGY (2 + 0) 2 credits
Development, identification and function of cellular and humoral elements in whole blood. Principles of laboratory assays used in the diagnosis of hematologic disorders. Prerequisite: CLS 161, 162, BIOL 262 or equivalent.

292 APPLIED HEMATOLOGY (0 + 6) 2 credits
Slide preparation and staining; manual and automated assays of whole blood components; cell identification; coagulation tests and special hematology procedures. Corequisite: CLS 291.

296 CLINICAL PRACTICUM (1 + 6) 3 credits
A six-week integration experience in hematology, microbiology, blood bank, serology, urinalysis and chemistry to include theory review and clinical rotations. Case history project required. Prerequisite: CLS 161, 162, 216, 241, 242, 251, 252, 271, 272, 281, 282, 291, 292.

301 BIOMETRY (1 + 0 per credit) 1 or 2 credits
Discussion on quality control and biostatistical principles useful to health professionals. A nontheoretical approach to descriptive and inferential techniques for solving and illustrating statistical problems. Prerequisite: MATH 115 or equivalent.

313 ADVANCED HEMATOLOGY (2 + 0) 2 credits
Hematologic disorders to include anemias, white cell dyscrasians, abnormal hemostasis, clinical presentation and laboratory findings associated with these conditions. Prerequisite: CLS 296.

314 ADVANCED HEMATOLOGY LABORATORY (0 + 3) 1 credit
Specialized and advanced hematologic procedures applied to the diagnosis of blood dyscrasias and hemostatic disorders. Corequisite: CLS 313.

317 PRINCIPLES OF LABORATORY SUPERVISION/MANAGEMENT I (1 + 0) 1 credit
An ovetview of the health care delivery systems; discussion of financing of medical care; federal legislation and constraints; accreditation agencies.

318 PRINCIPLES OF LABORATORY SUPERVISION/MANAGEMENT II (2 + 0) 2 credits
Principles of management related to budget preparation, evaluation of capital expenditures, equipment and supplies; all aspects of personnel management.

323 ADVANCED IMMUNOHEMATOLOGY LABORATORY (0 + 3) 1 credit
Advanced, specialized techniques used to identify abnormal antibodies as well as coverage of component separation, preparation and therapy. Prerequisite: CLS 296.

335 ADVANCED CLINICAL MICROBIOLOGY (2 + 0) 2 credits
Selection, interpretation and evaluation of clinical microbiology laboratory tests and their role in the diagnosis of infectious diseases. Prerequisite: CLS 296.

336 ADVANCED CLINICAL MICROBIOLOGY LABORATORY (0 + 6) 2 credits
Selection and performance of a variety of laboratory techniques to identify all types of microorganisms found in clinical specimens. Corequisite: CLS 335.

390 INDEPENDENT STUDY 1 to 3 credits
Individualized in-depth study of a specific area of medical technology, e.g. clinical chemistry, hematology, immunology, immunohematology, microbiology, urinalysis, laboratory administration, and education. Maximum of 6 credits.

425, 625 INSTRUMENTATION (1 + 0) 1 credit
Fundamental principles of specialized clinical laboratory instrumentation. Prerequisite: PHY 152, CHEM 330, CLS 296.

426, 626 CLINICAL CHEMISTRY (3 + 0) 3 credits
Critical examination of metabolism, methodology and clinical significance of chemical compounds in biological fluids. Prerequisite: CLS 296, CHEM 330, B CH 400 for CLS 426; B CH 400 and CHEM 343 for CLS 626.

427, 627 CLINICAL CHEMISTRY LABORATORY (0 + 3) 1 credit
Quantitative analysis of biological substances from blood, urine and body fluids with emphasis on special methods and instrumentation applying a quality control program. Corequisite: CLS 426.

431, 631 IMMUNOLOGY (3 + 0) 3 credits
Principles of cellular and humoral mechanism of immunity including host-parasite interrelationships, antibody structure and function, hypersensitivity, tolerance, transplantation, immunity, and diseases of immune origins. Prerequisite or corequisite: B CH 301 and knowledge of basic immunologic principles.

432, 632 SEROLOGY LABORATORY (0 + 3) 1 credit
Practical application of fundamentals in cellular and humoral immunity using laboratory techniques commonly performed in detection of disease states. Corequisite: CLS 431 or 631.

441 PATHOPHYSIOLOGY FOR MEDICAL TECHNOLOGISTS (1 + 3) 2 credits
Correlation of clinical laboratory results with disease mechanisms. Literature review and seminar presentations of specified disease syndromes. For medical technology majors in the preclinical semester.

451 CLINICAL PRACTICUM (1 + 3 per credit) 3 to 15 credits *S/U only*
Supervised clinical experience in all hospital laboratory departments: clinical chemistry, clinical microbiology, hematology, immunology, and urinalysis and body fluids. 26 weeks work experience, including elective, with emphasis on interpretation of laboratory results and clinical correlation. Prerequisite: successful completion of all professional (CLS) courses. For CLS majors only.

490 INDEPENDENT STUDY 1 to 3 credits
Individualized in-depth study of a specific area of medical technology, e.g. clinical chemistry, hematology, immunology, immunohematology, microbiology, urinalysis, laboratory administration and education. Maximum of 6 credits.

COMMUNITY HEALTH SCIENCES (CHS)

220 INTRODUCTION TO SOCIAL AND HEALTH SERVICES (3 + 3 or 3 + 0) 3 or 4 credits
(See S W 220 for description.)

300 COMMUNICATION SKILLS IN SOCIAL AND HEALTH CARE (2 + 2) 3 credits
Analysis and methods of communications. Strategies for dealing with specific behavioral and psychosocial issues in the professional setting. (Same as S W 300.)

301 AGING: AN INTERDISCIPLINARY APPROACH (2 + 2) 3 credits
Theories, methods, policies and programs pertinent to the aged. Includes exploration of an individual's ability to age successfully. Prerequisite: PSY 101 or S W 220. (Same as S W 301.)

325 FOUNDATIONS OF HEALTH EDUCATION (3 + 0) 3 credits
History, philosophy, theory. Settings and roles for health educators. Prerequisite: S W 220.

335 TEAM APPROACH TO SOCIAL WORK AND HEALTH CARE (3 + 0) 3 credits
Interdisciplinary studies of teamwork issues. Teams observe care providers and decision making in community settings. Prerequisite: H R 234. (Same as S W 335.)

354 PERSONAL HEALTH AND LIFE STYLES (3 + 0) 3 credits
Focus on health, illness prevention and health-care decision making. Examination of stress, life style, environmental influences, chronic disorders, nutrition, fitness and family health. (Same as RPED 354.)

378 CONTEMPORARY ISSUES IN SOCIAL WELFARE OR HEALTH (3 + 0) 3 credits
Analysis of current trends. Possible topics: guaranteed income, processes in social legislation, family and group therapy, health care systems, holistic health care, national health insurance. Maximum of 6 credits.

390 INTRODUCTION TO RESEARCH (3 + 0) 3 credits
(See S W 390 for description.)

420, 620 HEALTH ASPECTS OF GERONTOLOGY (3 + 0) 3 credits
Physiological aspects of the aging process; normal and pathological health changes in relation to aging.

430, 630 SOCIAL SERVICES IN DEATH AND DYING (3 + 0) 3 credits
(See S W 430, 630 for description.)

440, 640 LEADERSHIP TRAINING IN THE SOCIAL AND HEALTH PROFESSIONS (3 + 0) 3 credits
Theory and practice relevant to professionals. Supervised experimental learning provided. Prerequisite: H R 234 or 340.

452, 652 ADVANCED STUDIES IN HEALTH SYSTEMS AND POLICY (3 + 0) 3 credits
Emphasis on comparative health systems, the formation of governmental and private health policy, and the allocation of health resources. Prerequisite: S W 220.

462, 662 EPIDEMIOLOGY (3 + 0) 3 credits
The nature of disease patterns and occurrences. Etiology, recognition, transmission, prevention, and principles used in the control of disease and disorders affecting human health. Prerequisite: BIOL 262, 263; MATH 110 or equivalent.

464, 664 AIDS: SOCIAL AND HEALTH CARE CONCERNS (3 + 0) 3 credits
Clinical, public health, psychosocial, ethical, legal, economic, education, prevention and control issues affecting the health care delivery system, social services and society related to acquired immunodeficiency syndrom. Prerequisite: BIOL 101 or equivalent. (Same as S W 464, 664.)

470 HEALTH EDUCATION SEMINAR (3 + 0) 3 credits
Program development, major issues and innovations. Prerequisite: S W 220, 325.

471, 671 HEALTH OF THE SCHOOL-AGED CHILD (3 + 0) 3 credits
Major health problems encountered in school-age children. An interdisciplinary approach to health management and health awareness programs for children and youth. Prerequisite: H R 220.

472, 672 WOMEN: SOCIAL AND HEALTH CARE CONCERNS (3 + 0) 3 credits
Community resources, health care, sexism and problems unique to women in American society. Prerequisite: H R 220 or PSY 101. (Same as S W 472, 672.)

473, 673 ETHNIC AND RACIAL MINORITIES SOCIAL AND HEALTH CARE CONCERNS (3 + 0) 3 credits
(See S W 473, 673 for description.)

474, 674 SOCIAL INTERVENTION IN ALCOHOL AND DRUG ABUSE (3 + 0) 3 credits
Identification, treatment, prevention and control of drug addiction and alcoholism. (Same as S W 474, 674.)

475, 675 HUMAN VALUES AND PROFESSIONAL ETHICS (3 + 0) 3 credits
Focuses on value systems and major ethical issues in social and health care such as confidentiality, truth-telling and codes of professional behavior.

482, 682 FIELD WORK IN GERONTOLOGY (0 + 9) 3 credits
Supervised field experience in community agencies. Provides students work experience with the aged in actual field situations. Prerequisite: H R 301. Maximum of 6 credits. (Same as S W 482, 682.)

488 FIELD EXPERIENCE IN HEALTH CARE 1 to 3 credits
Special health problems as identified by health agencies. For preprofessional majors only. Maximum of 6 credits.

489 FIELD EXPERIENCE IN HEALTH EDUCATION 3 to 6 credits
Supervised field experience in community agencies. Designed to give students work experience in actual field situations. Prerequisite: H R 470.

495, 695 GERONTOLOGY RESEARCH: DIRECTED INDEPENDENT STUDY (0 + 9) 3 credits
Guided research in the area of gerontology of mutual interest to the student and faculty. Prerequisite: H R 301. Maximum of 6 credits. (Same as S W 495, 695.)

496, 696 DIRECTED INDEPENDENT RESEARCH 1 to 3 credits
Guided research in an area of mutual interest to the student and faculty. Maximum of 6 credits.

498, 698 SPECIAL PROBLEMS 1 to 3 credits
Maximum of 6 credits.

499, 699 INDIVIDUAL READING 1 to 3 credits
Supervised reading with regular conferences between student and faculty. Maximum of 6 credits.

COMPUTER INFORMATION SYSTEMS (CIS)

201 INTRODUCTION TO COMPUTER INFORMATION SYSTEMS (3 + 0) 3 credits
Computer-based management information systems. Includes computer hardware and software, business applications, computers in organizations, systems theory, application development methods, and computer security and privacy issues. Corequisite: CIS 202.

202 COMPUTER INFORMATION SYSTEMS LABORATORY (0 + 2) 1 credit
Introduction to microcomputer applications and mainframe computing with emphasis on operating systems, spreadsheet, word processing, database, and statistical package software. Corequisite: CIS 201.

203 MICROCOMPUTERS IN BUSINESS (3 + 0) 3 credits
Use of microcomputers in solving management problems. Includes introduction to computer programming using procedural languages. Prerequisite: CIS 201, 202.

251 INTRODUCTION TO COMPUTER INFORMATION SYSTEMS DEVELOPMENT (3 + 0) 3 credits
Basic concepts of business information systems development using the COBOL language. Emphasis on logic structures, programming design, system testing and documentation. Prerequisite: CIS 203.

253 COMPUTER APPLICATIONS USING RPG (3 + 0) 3 credits
Programming in RPG. Parallel emphasis of on-line business application systems, especially accounting and inventory control. Prerequisite: CIS 201, 202.

UPPER-DIVISION COURSES: Business students must have satisfactorily completed the entire lower-division business core and CIS 251. (See section on *Upper-Division Courses* in the College of Business Administration section.)

451, 651 ADVANCED COMPUTER INFORMATION SYSTEMS DEVELOPMENT (3 + 0) 3 credits
Advanced concepts of business information systems development using the COBOL language. Emphasis on software engineering; data structures; file, screen, report design; and interactive system creation. Prerequisite: CIS 251.

461, 661 INFORMATION SYSTEMS ANALYSIS (3 + 0) 3 credits
Theory of systems development. Emphasis on structured analysis and logical design using analysis tools and techniques; life cycle concepts; user relationships; cost benefit analysis. Prerequisite: CIS 251.

475, 675 NETWORKS AND DATA COMMUNICATION (3 + 0) 3 credits
Case studies and problems relating to the analysis and design of business data communication systems. Evaluation of centralized, decentralized and distributed processing systems.

484, 684 DATABASE MANAGEMENT AND OPERATING SYSTEMS (3 + 0) 3 credits
Database management systems and features of supporting operating system environments. Evaluation of business database systems including application program development within database structures. Prerequisite: CIS 451, 461.

485, 685 INFORMATION SYSTEMS DESIGN AND IMPLEMENTATION (3 + 0) 3 credits
Project course utilizing a comprehensive workbench package. Emphasis on program and physical system design; design of program structures, subsystems, user interfaces; implementation and conversion problems. Prerequisite: CIS 484.

487, 687 DECISION SUPPORT SYSTEMS (3 + 0) 3 credits
Taxonomy of DSSs and decision models; development of DSSs using higher-level programming languages, packages, quantitative models and data bases. Prerequisite: MGRS 352.

488, 688 SPECIAL TOPICS (3 + 0) 3 credits
Special topics in selected information systems problems.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

495, 695 INTERNSHIP IN COMPUTER INFORMATION SYSTEMS (1 + 0 per credit) 1 to 3 credits *S/U only*
Cooperative education wherein students apply knowledge to real business problems developed jointly by company officials and faculty adviser.

Inactive Course

150 BASIC (1 + 0) 1 credit

COMPUTER SCIENCE (C S)

183 INTRODUCTION TO COMPUTER SCIENCE I (3 + 2) 4 credits
Computer organization, algorithms, data representation, history. Exposure to computer applications from word processing to numerical problems. Emphasis on structured programming using PASCAL. Prerequisite: MATH 115 or satisfactory score on qualifying examination.

233 PC ASSEMBLY LANGUAGE SYSTEMS PROGRAMMING (3 + 0) 3 credits
(See E E 233 for description.)

283 INTRODUCTION TO COMPUTER SCIENCE II (3 + 0) 3 credits
Structured program design using PASCAL. Applications drawn from elementary numerical methods, data structures and nonnumeric algorithms such as searching, sorting and Polish notation conversion. Prerequisite: C S 183 or equivalent.

284 APPLICATION COMPUTER LANGUAGES (1 + 0) 1 credit
(See MATH 284 for description.)

285 INTRODUCTION TO COMPUTER SYSTEMS (3 + 0) 3 credits
Computer structure, assembly language programming, machine language. Representation of data, subroutines, coroutines, recursion. Macro definition data structures, symbolic debugging. Prerequisite: C S 283.

333 COMPUTER LOGIC DESIGN (3 + 0) 3 credits
Techniques for analysis and design of combinatorial and sequential switching networks; boolean algebra, elements of code theory, function minimization, computer subsystems, arithmetic and logic algorithms, asynchronous sequential networks, simple computer operation. Prerequisite: MATH 217. (Same as E E 333.)

386 COMPUTER PROGRAMMING LANGUAGES (3 + 0) 3 credits
Syntax and semantics of programming languages. Algorithmic simulation, list processing and string manipulation languages. Run-time representation of program and data structures. Formal specification of data structures. Prerequisite: C S 285.

387 INTRODUCTION TO THE THEORY OF COMPUTATION (3 + 0) 3 credits
Regular, context free, and type 0 languages and grammars; finite state, pushdown, and Turing automata; unsolvability; complexity, and NP completeness. Prerequisite: MATH 381, C S 386.

431, 631 DIGITAL COMPUTER ARCHITECTURE AND DESIGN (3 + 0) 3 credits
(See E E 431, 631 for description.)

436, 636 MICROPROCESSORS (3 + 0) 3 credits
(See E E 436, 636 for description.)

437, 637 COMPUTER GRAPHICS (3 + 1) 3 credits
Software, hardware and mathematical tools for the representation, manipulation and display of two- and three-dimensional objects: applications of these tools to specific problems. Prerequisite: C S 183. (Same as E E 437, 637.)

475, 675 SOFTWARE ENGINEERING (3 + 0) 3 credits
Requirements specifications, structured analysis, modeling, top down design, testability, maintainability, portability, verification and validation, modification, configuration, management, reliability, efficiency, complexity, compatibility, modularity, interfacing, hardware and language issues. Prerequisite: C S 183.

482, 682 DATA COMMUNICATIONS AND COMPUTER NETWORKS (3 + 0) 3 credits
Digital modulation, transmission and synchronization, coding, error detection, interfacing, computer networks, ISO model, circuit/packet switching, local area networks. Prerequisite: C S 183, 333. (Same as E E 482, 682.)

483, 683 NUMERICAL METHODS I (3 + 0) 3 credits
(See MATH 483, 683 for description.)

485, 685 COMPUTER DATA STRUCTURES (3 + 0) 3 credits
Analysis and design of nonnumeric algorithms which act on data structures including stacks, queues, lists, trees and graphs. Sorting, searching and memory management. Prerequisite: C S 386.

486, 686 PRINCIPLES OF COMPUTER OPERATING SYSTEMS
(3 + 0) 3 credits
Concurrent processes, interprocess communication, processor management, virtual and real memory management, deadlock, file systems, disk management, performance issues, case studies. Practical experience with UNIX. Prerequisite: C S 333, 485.

487, 687 COMPUTER DATABASE MANAGEMENT SYSTEMS
(3 + 0) 3 credits
An overview of existing systems; physical data organization; relational, network and hierarchical models; data manipulation languages; data definition languages; database protection; database applications using INGRES. Prerequisite: C S 386. (Same as MATH 487, 687.)

488, 688 TOPICS IN ARTIFICIAL INTELLIGENCE (3 + 0) 3 credits
(a) Survey of artificial intelligence, (b) programming techniques in artificial intelligence. Prerequisite: C S 386 for (a); MATH 481b for (b). Maximum of 6 credits — 3 in each topic. (Same as MATH 488, 688.)

489, 689 TOPICS IN COMPUTER SCIENCE (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as computer networks, compilers, graphics, computability, analysis of algorithms, software design, functional programming and denotational semantics. Maximum of 6 credits. (Same as MATH 489, 689.)

493, 693 INDEPENDENT STUDY IN COMPUTER SCIENCE 1 to 3 credits
(See E E 493, 693 for description.)

496 SENIOR PROJECTS 2 to 4 credits
Faculty-supervised individual or small-group projects with emphasis on research, design, or tutorial study. Prerequisite: C S 486. Maximum of 8 credits.

703 COMPUTABILITY AND FORMAL LANGUAGES (3 + 0) 3 credits
Turing machines, recursive functions, computability and undecidability. Formal languages and their decision problems. Prerequisite: MATH 381. (Same as MATH 703.)

704 NONPROCEDURAL PROBLEM SOLVING TECHNIQUES
(3 + 0) 3 credits
(a) Knowledge based systems, (b) PROLOG problem solving. Maximum 6 credits — 3 in each topic. Prerequisite: C S 488b. (Same as MATH 704.)

705 COMPILERS AND TRANSLATORS (3 + 0) 3 credits
Context-free and regular grammars, lexical analyzers, LL(k) and LR(k) parsers, syntax directed translation, code generation, optimization; practical experience with compiler writing tools of UNIX. Prerequisite: C S 486, 686. (Same as MATH 705.)

706 ADVANCED OPERATING SYSTEMS CONCEPTS (3 + 0) 3 credits
(a) Design and implementation, (b) computer networks. Maximum of 6 credits — 3 in each topic. Prerequisite: C S 486, 686. (Same as MATH 706.)

709 TOPICS IN ADVANCED COMPUTER SCIENCE (3 + 0) 3 credits
a) Algorithms and complexity, (b) software project management and development, (c) discrete systems simulation. Maximum 9 credits — 3 in each topic. Prerequisite: MATH 381 or 435 for (a); C S 486 for (b) and (c). (Same as MATH 709.)

731 ADVANCED SWITCHING THEORY (3 + 0) 3 credits
(See E E 731 for description.)

732 THEORY OF PARALLEL AND DISTRIBUTED PROCESSING
(3 + 0) 3 credits
(See E E 732 for description.)

733 MACHINE INTELLIGENCE (3 + 0) 3 credits
See E E 733 for description.)

784 COMPUTER LABORATORY (0 + 3) 1 credit
(See E E 784 for description.)

790 SEMINAR 1 to 3 credits
(See E E 790 for description.)

791 SPECIAL TOPICS 1 to 3 credits

793 INDEPENDENT STUDY 1 to 3 credits

796 PROFESSIONAL PAPER 2 credits *S/U only*

797 THESIS 1 to 6 credits

COUNSELING AND EDUCATIONAL PSYCHOLOGY (CEP)

122 ENHANCING ACADEMIC SUCCESS (1 + 0) 1 credit *S/U only*
Improving competence in such areas as time management, interpersonal communication, goal setting, decision-making, test-taking strategies and concepts related to the achievement of academic success.

123 CAREER DEVELOPMENT (2 + 1) 2 credits *S/U only*
Occupational choice processes leading to control over one's own life/career development by planning and decision-making.

330 EDUCATIONAL PSYCHOLOGY (3 + 0) 3 credits
Overview of the psychology of learning, motivation, growth and development, personality dynamics and social adjustment. Field experience required during course. Prerequisite: PSY 101.

331 EDUCATIONAL PSYCHOLOGY EXPERIENCE (0 + 2) 1 credit *S/U only*
Field experience to assist students to apply basic helping principles of educational psychology to tutoring and school situations. Prerequisite or corequisite: CEP 330.

400, 600 INTRODUCTION TO COUNSELING AND GUIDANCE
(3 + 0) 3 credits
Overview of personnel services that include counseling, individual appraisal, occupational information, group procedures, referral and follow-up. Prerequisite: PSY 101. Meets teacher certification requirements. Graduate program credit for nonmajors and international students only.

401, 601 INTRODUCTION TO ELEMENTARY SCHOOL GUIDANCE
(3 + 0) 3 credits
Overview of personnel services at the elementary school and preschool levels. The teacher's role emphasized. Meets teacher certification requirements.

410, 610 INTRODUCTION TO EMPLOYMENT COUNSELING
(3 + 0) 3 credits
Principles, procedures, techniques, backgrounds of public and private employment agencies. Emphasis on employment records, tests (General Aptitude Test Battery), occupational information, referral, placement, employer relations. Prerequisite: CEP 400.

412, 612 CORRECTIONS COUNSELING (3 + 0) 3 credits
Overview of services provided by counselors of public offenders, including juvenile and adult probation, imprisonment, and parole. Prerequisite: CEP 400.

417, 617 INTRODUCTION TO REHABILITATION COUNSELING
(3 + 0) 3 credits
Philosophy, procedures, staff and professional relationships employed in the rehabilitation process including evaluation, interviewing, planning and placement. Prerequisite: CEP 400.

420, 620 THE INFORMATION SERVICES (3 + 0) 3 credits
Procurement, evaluation and utilization of occupational, educational and personal-social information within the context of a guidance program; includes the follow-up and community surveys, placement and referral agencies. Prerequisite: CEP 400 or 401.

422, 622 CAREER EDUCATION (3 + 0) 3 credits
Career education encompasses the career development experiences for kindergarten through twelfth-grade instructional sequences. The goal is self and environmental awareness by approaching subject matter from the standpoint of vocational utility. Designed for the classroom teacher. Prerequisite: CEP 330.

431, 631 BEHAVIORAL ANALYSIS (3 + 0) 3 credits
Interaction analysis of groups and diagnosis of individual behavior. Prerequisite: CEP 330.

436, 636 TEACHING FOR CRITICAL THINKING (3 + 0) 3 credits
Emphasized knowledge and understanding of the field of critical thinking and methods and procedures required to teach critical thinking at various age levels. Prerequisite: PHIL 105 or equivalent.

440, 640 EDUCATIONAL MEASUREMENTS AND STATISTICS
(3 + 0) 3 credits
Basic statistical methods in the field of education and related disciplines. Emphasis on role of statistics in behavioral research; meets certification requirements for those areas in education requiring a background in statistical understandings.

442, 642 INDIVIDUAL APPRAISAL I (3 + 0) 3 credits
Selection, administration, interpretation and statistical understanding of standardized aptitude, achievement and personal-social adjustment tests. Prerequisite: CEP 400 or 401.

456, 656 INTRODUCTION TO SEX EDUCATION (1 + 0) 1 credit
Introduces concerns relating to sexual anatomy, vocabulary, values, pregnancy, abuse, rape, disease, homosexuality, and curricular programs.

460, 660 GROUP PROCESS (3 + 0) 3 credits
Theory and techniques in understanding group behavior and the development of experiences that lead to self-insight. Prerequisite: CEP 400 or 401.

465, 665 CHILD AND FAMILY GUIDANCE (3 + 0) 3 credits
Principles of child behavior at home and school are studied with actual teachers, children and families involved. Application for counselors and teachers is emphasized. Prerequisite: CEP 400 or 401.

490, 690 WORKSHOP IN COUNSELING AND GUIDANCE
(1 + 0 per credit) 1 to 4 credits
Specialized instruction in counseling and guidance designed to develop depth in understanding of a current guidance problem. Maximum of 4 credits.

491, 691 SPECIAL TOPICS WORKSHOP (1 to 3 + 0) 1 to 3 credits *S/U only*
Specialized instruction designed to develop breadth of understanding in current counseling topics. Maximum of 6 credits.

499, 699 SPECIAL PROBLEMS IN COUNSELING 1 to 6 credits
Specialized instruction in counseling and guidance personnel services designed to develop depth in understanding of current counseling problems of the in-service counselor. A maximum of 6 credits accepted in special problems for graduate degree programs.

614 COLLEGE STUDENT DEVELOPMENT SERVICES (3 + 0) 3 credits
Characteristics of college students' goals, values, attitudes and relationships. Student personnel systems designed to facilitate personal, social, academic and vocational growth. Prerequisite: CEP 400.

632 GROUP GUIDANCE (3 + 0) 3 credits
Human relations, psychological education, and structured developmental group guidance activities and skills featured. Overview of the emotional aspects of learning, valuing, and communicating. Prerequisite: CEP 600.

700 INTRODUCTION TO EDUCATIONAL RESEARCH (3 + 0) 3 credits
Introductory course required for all students preparing for an advanced degree. Emphasis on the purpose, general procedures and types of educational research. Designed for research practitioners and consumers.

715 SEMINAR IN COLLEGE STUDENT DEVELOPMENT (3 + 0) 3 credits
Student-personnel functions of developing, implementing and evaluating to include: programs in higher education financial aids, career planning and placement, enrollment planning, residential life, counseling, student activities, academic advising, and administration. Prerequisite: CEP 614.

716 COUNSELING IN HIGHER EDUCATION (3 + 0) 3 credits
Focus on the psychological, intellectual, emotional development aspects of both late adolescents and transitional adults and their counseling needs as students in higher education institutions. Prerequisite: CEP 750.

721 THEORIES OF OCCUPATIONAL CHOICE (3 + 0) 3 credits
Analysis of the relationships among theoretical constructs, counselor behavior and vocational counseling services. Prerequisite: CEP 400 or 401.

738 LEARNING THEORIES IN EDUCATION (3 + 0) 3 credits
Problem-solving, cognitive processes, concept formation and creativity from the viewpoint of major learning theorists as applied to the educational and classroom setting. Conditions and processes of behavior modification. Prerequisite: CEP 651, 642.

740 ADVANCED EDUCATIONAL MEASUREMENTS AND STATISTICS
(3 + 0) 3 credits
Second course designed for the student planning to contribute research findings of their own design. Refinement of inferential statistical methods introduced in CEP 440. Prerequisite: CEP 440 or 640 or equivalent.

742 INDIVIDUAL APPRAISAL II (3 + 0) 3 credits
Techniques and interpretation of personality appraisal with an emphasis on school age children. Includes self report inventories, projective techniques, and rating scales. Prerequisite: CEP 642.

744 INDIVIDUAL APPRAISAL III (4 + 0) 6 credits
Selection, administration, and interpretation of individually administered scales of mental capacity and emotional analysis. Prerequisite: CEP 742, 770. Advance departmental approval is required.

749 CASE STUDY SEMINAR (2 + 3) 3 credits
Study, diagnosis, planning and evaluation of program of services provided counselees and students. Instructional processes include staff-study in demonstration of cooperative interprofessional relationships. Prerequisite: CEP 750 plus 18 graduate credits in CEP courses.

750 THE COUNSELING PROCESS (3 + 0) 3 credits
Theory and techniques of therapeutic counseling; self-theory emphasized with dyadic relationships the focus. Prerequisite: CEP 400 or 401.

751 COUNSELING THE CULTURALLY DIFFERENT (3 + 0) 3 credits
Special relational problems and processes in the counseling setting in effectively dealing with counselees from non-middle class and/or non-Caucasian backgrounds. Values, attitudes and beliefs of various subcultures. Prerequisite: CEP 750.

752 ADVANCED COUNSELING THEORY (3 + 0) 3 credits
Depth investigation of major theoretical positions related to professional counseling services. Ethical and procedural components stressed. Prerequisite: CEP 770.

753 COUNSELING THE OLDER WORKER (3 + 0) 3 credits
Concerns of older persons preparing for retirement and life-style changes; agency counseling assistance programs; special relational skills and intervention systems when dealing with the aging person. Prerequisite: CEP 750.

754 SUBSTANCE ABUSE COUNSELING (3 + 0) 3 credits
Physical and psychological aspects of substance abuse; specific counseling and treatment approaches. Prerequisite: CEP 750.

755 SEMINAR IN ELEMENTARY SCHOOL COUNSELING (3 + 0) 3 credits
Directed seminar format considering roles and relationships of pupil personnel specialists within grades kindergarten through sixth. Case studies illustrate interprofessional functioning between school and community agencies. Pupil, parental and faculty concerns explicated. Prerequisite: CEP 642, 660, 750.

756 SEXUAL ISSUES IN COUNSELING (3 + 0) 3 credits
Counseling problems and techniques related to major current sexually-related concerns such as sexual roles and dysfunctions, unwanted pregnancy and sexually transmitted diseases.

761 GROUP COUNSELING (3 + 0) 3 credits
Theories and techniques of small group counseling with an emphasis on developing group counseling leadership skills. Prerequisite: CEP 750.

764 GROUP COUNSELING THEORY (1 + 0 per credit) 2 or 3 credits
Group counseling processes provided for small groups. Includes co-counseling designs: (a) family groups, (b) employment groups, (c) need groups. Prerequisite: CEP 660 plus 15 graduate credits in CEP courses.

765 THEORY AND PRACTICE OF MARRIAGE COUNSELING
(3 + 0) 3 credits
Study of therapy systems to aid intimate partnerships, their formation, maintenance and termination. Prerequisite or corequisite: CEP 770.

766 ADVANCED FAMILY COUNSELING (3 + 0) 3 credits
Study of therapeutic intervention systems over the life span of developing families. Prerequisite: CEP 765.

769 COUNSELING LABORATORY (0 + 6) 3 credits *S/U only*
Counseling experience and practice under supervision. Corequisite: CEP 750.

770 PRACTICUM IN COUNSELING (1½ + 6) 3 credits
Supervised counseling internship. May be repeated to a maximum of 6 credits per advanced degree. Written applications required by July 1 for fall and December 1 for spring. (a) Elementary schools; (b) secondary schools; (c) higher education; (d) employment service; (e) vocational rehabilitation; (f) private agencies. Prerequisite: CEP 620 or 721, 642, 660, 750.

772 PRACTICUM IN GROUP COUNSELING (1½ + 6) 3 credits
Supervised counseling internships with small groups. Written applications required one month prior to registration. Maximum of 6 credits. Prerequisite: CEP 770.

773 PRACTICUM IN FAMILY COUNSELING (1 + 4 per credit) 3 or 6 credits
Supervised counseling internship with families. Written applications are required by July 1 for fall and December 1 for spring. Prerequisite: CEP 770.

774 COLLEGE STUDENT DEVELOPMENT LABORATORY (0 + 9) 3 credits
Supervised work experience at a professional level. (a) recruitment and retention, (b) academic advising, (c) orientation, (d) international student affairs, (e) administration. Prerequisite: 15 graduate CEP credits appropriate to the assignment.

775 DOCTORAL RESEARCH SEMINAR (3 + 0) 3 credits
Advanced considerations relating to the materials, procedures and write-up techniques involved in educational research. Special attention on analysis of various social science approaches to the study of education problems. Doctoral research area should be identified before enrolling; concurrently, the student must be registered for at least 3 credits of CEP 799. Prerequisite: doctoral candidacy plus CEP 640 and 700 or equivalent.

776 GUIDANCE LABORATORY (1½ + 6) 3 credits
Supervised guidance work experience at a professional leadership level. (a) financial aids and graduate placement, (b) residence halls and college housing, (c) occupational information and vocational placement, (d) career education,

(e) consulting, (f) appraisal, (g) substance abuse. Prerequisite: 12 graduate CEP credits appropriate to the task activities.

779 PRACTICUM IN SCHOOL PSYCHOLOGY
(½ + 2 per credit) 3 to 6 credits
Directed experiences in the administration, interpretation, consultation and counseling pertaining to assessment and school psychological services. Written applications required one month prior to registration. Maximum of 12 credits. Prerequisite: CEP 744.

782 CONSULTATION AND SUPERVISION IN COUNSELING SERVICES
(3 + 0) 3 credits
Theoretical and practical counseling methods for assisting the change process in individuals and organizations. Includes the theory and practice of supervision techniques for counseling services. Prerequisite: completion of 18 CEP graduate credits.

784 STRUCTURE AND SUPERVISION OF PUPIL PERSONNEL PROGRAMS (2 + 0) 3 credits
Assessing the need, determining the structure, supervising the specialists and evaluating the functions of pupil and student personnel programs. Emphasizes procedures for incorporating guidance services within the educational setting. Meets certification requirements for school counselors. Prerequisite: CEP 750 or approval of instructor.

790 SEMINAR 2 to 4 credits
Maximum of 4 credits.

791 SPECIAL TOPICS 1 credit
Selected basic problems related to counseling and guidance personnel services. Maximum of 4 credits.

794 COLLOQUIA IN COUNSELING
(1 + 0 per credit) 1 to 3 credits *S/U only*
Emphasis on current and pertinent topics. Presentations by prominent professionals in the field.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

798 COUNSELING INTERNSHIP (0 + 2 per credit) 1 to 6 credits
A program of professional counseling services in one of the following areas: (a) elementary schools, (b) secondary schools, (c) higher education, (d) employment service, (e) vocational rehabilitation, (f) private agencies, (g) marriage and family. Prerequisite: 6 counseling practicum credits.

799 DISSERTATION 1 to 12 credits

CRIMINAL JUSTICE (C J)

110 INTRODUCTION TO CRIMINAL JUSTICE (3 + 0) 3 credits
Introduction to the history, philosophy and functions of community, state and federal agencies or services involved in the criminal justice system. Chronological process of procedures from incident to final disposition.

120 CRIMINAL LAW (3 + 0) 3 credits
General introduction to the substantive law of crimes, emphasizing historical development; types and elements of crime; criminal responsibility; justification and defense; anticipatory offenses.

211 POLICE IN AMERICA (3 + 0) 3 credits
Historical development, roles, socialization and problems of police work. Prerequisite: C J 110.

220 CRIMINAL PROCEDURE (3 + 0) 3 credits
Origin, development and rationale of the structural and procedural aspects of America's criminal justice system and arrest, search-seizure, confessions and related legal issues. Prerequisite: C J 120.

231 CORRECTIONS (3 + 0) 3 credits
Overview of development of corrections, recent innovations and future correctional systems structure and programs. Prerequisite: C J 110.

232 COMMUNITY CORRECTIONS (3 + 0) 3 credits
Philosophy of community corrections, alternatives to confinement, the role of corrections in the community, evaluation of existing programs and administration of and planning for community corrections. Prerequisite: C J 231.

312 ADMINISTRATION (3 + 0) 3 credits
Theory of management and motivation; bureaucracy; labor law and relations; financial administration; criminal justice agency administration. Prerequisite: C J 110.

313 CRIMINAL JUSTICE AND COMMUNITY RELATIONS (3 + 0) 3 credits
Current issues and theories in relationships between the criminal justice system and the community. Prerequisite: C J 110.

320 LEGAL SEMINAR I (3 + 0) 3 credits
Elements of criminal law, procedure and evidence. Prerequisite: C J 110, 120, 220. Limited to criminal justice majors and minors only.

324 PRINCIPLES OF CRIMINAL INVESTIGATION (3 + 0) 3 credits
Fundamental principles of criminal investigation including crime scene work, collection and analysis of physical evidence, sketching, forensic photography and identification techniques. Prerequisite: completion of all required lower-division criminal justice courses. Open only to criminal justice majors and minors.

326 JUVENILE JUSTICE (3 + 0) 3 credits
Decision-making processes; theories of delinquent behavior; court decisions and problems affecting the administration of justice during childhood and adolescence.

328 STATISTICS FOR CRIMINAL JUSTICE (3 + 0) 3 credits
Study and practice with statistical methods which are useful in the collection, processing and utilization of data relative to criminal justice work.

330 PROFESSIONAL PAPER-RESEARCH PROBLEM 2 credits

331 THE CORRECTIONAL INSTITUTION (3 + 0) 3 credits
Analysis of the administration and societies of the prison community. Prerequisite: C J 110, 231.

332 PROBATION AND PAROLE (3 + 0) 3 credits
Scope and functions of probation and parole, decision-making processes, differences in supervision of clients, management of resources, use of volunteers and current trends in these fields. Prerequisite: C J 231.

336 JUVENILE CORRECTIONS (3 + 0) 3 credits
Overview of development of juvenile corrections, nature of the offender, processing, treatment and aftercare facilities. Prerequisite: C J 110.

366 CRIMINOLOGY (3 + 0) 3 credits
(See SOC 366 for description.)

367 PENOLOGY (3 + 0) 3 credits
(See SOC 367 for description.)

410 CRIMINAL JUSTICE SEMINAR (3 + 0) 3 credits
Intensive study of the theory and operation of the entire criminal justice system.

412 ADVANCED ORGANIZATION AND ADMINISTRATION
(3 + 0) 3 credits
Advanced concepts and theories of criminal justice organization and administration. Prerequisite: C J 110.

420 LEGAL SEMINAR II (3 + 0) 3 credits
Continuation of C J 320. Prerequisite: C J 320.

424 CRIMINALISTICS (2 + 3) 3 credits
Gathering and preservation of evidence. Preparation of evidence for forensic use. Prerequisite: C J 324. Open only to criminal justice majors and minors.

425 ADVANCED CRIMINAL INVESTIGATION (2 + 3) 3 credits
Continuation of C J 324 with emphasis on crime scene work and use of the crime laboratory. Prerequisite: C J 324.

450 CRIMINAL JUSTICE INTERNSHIP 1 to 6 credits *S/U only*
Individual student internships are arranged with appropriate federal, state, or local criminal justice agencies. Regular written reports on observations and activities are required. Maximum of 9 credits. Open only to criminal justice majors and minors.

498 SELECTED TOPICS IN CRIMINAL JUSTICE 1 to 3 credits
Study of a major topic or issue in criminal justice. Maximum of 9 credits when content differs.

499 INDEPENDENT STUDY IN CRIMINAL JUSTICE 1 to 3 credits
Maximum of 6 credits. Open only to criminal justice majors.

Inactive Course

214 PRINCIPLES OF POLICE PATROL TECHNIQUES (3 + 0) 3 credits
260 THE VOLUNTEER IN COURTS AND CORRECTIONS (4 + 0) 4 credits
316 TECHNIQUES OF POLICE TRAFFIC FUNCTIONS (3 + 0) 3 credits

CURRICULUM AND INSTRUCTION (C I)

230 ORIENTATION TO VOCATIONAL EDUCATION (3 + 0) 3 credits
Organization and management of vocational classes, laboratories, shops, work experiences, etc., youth groups and advisory committees.

270 HUMAN GROWTH AND DEVELOPMENT (3 + 0) 3 credits
Principles of human growth and development, the nature of the child, and child and adolescent learning. Prerequisite: general psychology. Corequisite: C I 271.

271 ELEMENTARY EDUCATION EXPERIENCE (0 + 3) 1 credit *S/U only*
This field experience in the public schools acquaints prospective teachers with the students and environment of elementary schools. Corequisite: C I 270.

280 BASIC COMPUTER APPLICATIONS IN EDUCATION (1 + 0) 1 credit
Basic exposure to computing and to computer applications in education. Includes hands-on experience with the computer. Designed primarily for preservice teachers.

290 ISSUES IN EDUCATIONAL COMPUTING (1 + 0) 1 credit
Examination of current research, issues and trends in educational computing.

300 READING AND LANGUAGE ARTS IN THE ELEMENTARY SCHOOL (3 + 0) 3 credits
Basic understanding, techniques, and approaches to instruction in oral and written language development, comprehension, word recognition, phonics, writing process and literature-based curriculum.

301 INTRODUCTION TO LIBRARY EDUCATION (3 + 0) 3 credits
Acquaints student with philosophy and work of school librarian. Introduces bibliographic tools and information sources basic to librarianship, emphasizing those used in school library work.

305 VOCATIONAL SAFETY TECHNIQUES (1 + 0) 1 credit
Introduction to basic concepts of classroom safety strategies, area of emphasis including concerns for safety, responsibility and liability and preventing bodily injury.

310 EDUCATION OF THE EXCEPTIONAL CHILD (1 + 0 per credit) 2 or 3 credits
Survey of the various types of exceptionalities. Emphasis on etiology, physical and educational characteristics.

311 INTRODUCTION TO LEARNING AND BEHAVIOR DISORDERS (3 + 0) 3 credits
Overview of contemporary theories and approaches to learning and behavior disorders with emphasis on assessment and treatment methodologies. Prerequisite: C I 310.

312 EXCEPTIONAL CHILD EXPERIENCE (0 + 3) 1 credit *S/U only*
Field experience to acquaint students with types of handicapping conditions and kinds of services available to handicapped persons. Prerequisite or corequisite: C I 311.

350 MIDDLE SCHOOL PRACTICUM (2 + 4) 3 credits
General principles of secondary instruction with field experience in the middle school.

393 AUDIOVISUAL EQUIPMENT AND INSTRUCTIONAL MEDIA 1 credit
Beginning exposure to audiovisual equipment used in teaching and preparation of basic instructional materials for the classroom. Prerequisite: education major.

400, 600 SIGN LANGUAGE FOR TEACHERS (3 + 0) 3 credits
Development of signing and fingerspelling skills. Curriculum development based on manual communication. Orientation to American sign language and deaf culture.

401, 601 INDIVIDUALIZED METHODS OF TEACHING READING (3 + 0) 3 credits
Theory, procedures, organization and content of an individualized approach to the teaching of reading. Prerequisite: C I 300.

404, 604 READING AND WRITING IN THE SECONDARY SCHOOL (3 + 0) 3 credits
In content fields; sources of difficulties; developmental instruction; techniques for promoting comprehension and vocabulary. Prerequisite: C I 270, CEP 330, or valid teaching certificate.

406, 606 SURVEY OF REMEDIAL READING PROBLEMS (3 + 0) 3 credits
Introductory course for remedial reading training. Offers specialized instruction in reading designed to develop depth in remedial reading problems. Prerequisite: C I 300.

407, 607 BOOK SELECTION FOR CHILDREN (3 + 0) 3 credits
Survey of the field of books for children. Children's reading interests and needs as bases for evaluating and selecting library materials for the elementary school.

408, 608 BOOK SELECTION FOR ADOLESCENTS/YOUNG ADULTS (3 + 0) 3 credits
Prepares teachers, librarians and administrators for evaluation of books and other library materials for pupils in secondary schools. Prerequisite: C I 301 or equivalent.

409, 609 HANDICAPPED LEARNERS IN THE REGULAR CLASSROOM (3 + 0) 3 credits
Preparation of teachers to deal with assessment and program development for handicapped children who are placed in the regular classroom. Prerequisite: E L 101, C I 270 or equivalent. Meets new teacher education certification requirements.

410, 610 TRANSITIONAL PROGRAMS FOR THE HANDICAPPED ADOLESCENT (3 + 0) 3 credits
Instructional strategies for preparing the handicapped adolescent for the transition from school to work. Implications for secondary school resource room teachers. Prerequisite: preprofessional standing in teacher certification.

411, 611 TEACHING HOME ECONOMICS (1 + 0 per credit) 2 or 3 credits
Includes instructional planning, execution, and assessment; curriculum development; and classroom and laboratory management. Understanding middle and high school home economics programs. Prerequisite: preprofessional standing in the College of Education.

413, 613 SERVING HANDICAPPED INDIVIDUALS AND THEIR FAMILIES (3 + 0) 3 credits
Facilitating the interrelationship of varied services for exceptional students. Focus includes working with parents, professionals and community service.

414, 614 PROBLEMS IN SPECIAL EDUCATION (1 + 0 per credit) 1 to 3 credits
Integration of subject matter into the learning situation. New procedures on developments in the area of special education. Observation of special classrooms is required. Maximum of 12 credits, only 6 of which may apply to a degree. Prerequisite: C I 310, 311, 418 or 471.

415, 615 THE ADOLESCENT LEARNER AND THE SECONDARY CURRICULUM (3 + 0) 3 credits
Accommodating the secondary curriculum to developmental characteristics of the adolescent. Prerequisite: preprofessional standing in teacher certification program.

416, 616 INSTRUCTION OF MODERATELY AND SEVERELY RETARDED STUDENTS (3 + 0) 3 credits
Curriculum developments and methods in teaching the moderately and severely retarded child. Includes an experience with severely handicapped children.

417, 617 CURRICULAR APPROACHES FOR THE HANDICAPPED ADOLESCENT (3 + 0) 3 credits
Problems and methods for designing curriculum for secondary special education students with emphasis on vocational experience. Prerequisite: C I 311.

418, 618 CURRICULUM DEVELOPMENT FOR THE MILDLY HANDICAPPED (3 + 3) 4 credits
Problems and procedures in curriculum development for the mildly handicapped child. Materials and technique development for use in special, regular or resource classrooms. Field experience is required as a part of the course to practice techniques. Prerequisite: C I 471.

419, 619 TEACHING THE BLIND AND VISUALLY HANDICAPPED (1 + 1 per credit) 2 or 3 credits
Anatomy and physiology of the eye. Instruction of the partially seeing and blind. Instruction in Braille, six-key typewriter and other audiovisual equipment. Prerequisite: C I 310.

420, 620 SOCIOCULTURAL CONCERNS IN EDUCATION (3 + 0) 3 credits
Analysis of equity issues in contemporary schools. Concerns relative to access, participation, and benefit are addressed in relation to education for culturally pluralistic student populations. Prerequisite: C I 450 or CEP 330.

421, 521 TEACHING SECONDARY SOCIAL STUDIES (1 + 0 per credit) 2 or 3 credits.
Nature of social growth of adolescents in a democratic culture. Content and procedures in social studies. Development of instructional materials and techniques. Prerequisite: preprofessional standing in the College of Education.

422, 522 TEACHING OF SECONDARY MATHEMATICS (1 + 0 per credit) 2 or 3 credits
Curriculum and instruction in secondary school mathematics with emphasis on relating it to college mathematics. Prerequisite: preprofessional standing in the College of Education; MATH 474, 475.

423, 523 TEACHING SECONDARY ENGLISH (1 + 0 per credit) 2 or 3 credits
Principles and practices for teaching writing, speaking, listening and literature. Prerequisite: preprofessional standing in the College of Education.

424, 524 TEACHING SECONDARY SCHOOL SCIENCE
(1 + 0 per credit) 2 or 3 credits
Content and methods in teaching secondary science with emphasis on scientific literacy, demonstration, investigation, computer application, and other educational technology. Prerequisite: preprofessional standing in the College of Education.

425, 525 METHODS AND MATERIALS IN TEACHING BUSINESS EDUCATION (1 + 0 per credit) 2 or 3 credits
Learning processes and their application to the teaching of business subjects. Techniques and media for effective teaching of skill and nonskill areas. Prerequisite: preprofessional standing in the College of Education.

426, 526 TEACHING SECOND LANGUAGES IN THE PUBLIC SCHOOL
(1 + 0 per credit) 2 or 3 credits
Examination of traditional and innovative second language teaching approaches; lesson design for major skills; supervised teaching in groups. Prerequisite: preprofessional standing in the College of Education.

427, 627 TEACHING INDUSTRIAL EDUCATION
(1 + 0 per credit) 2 or 3 credits
Techniques of teaching applied to individual and group instruction in industrial education. Shop management, equipment standards, specifications, safety precautions, and shop regulations. Prerequisite: C I 270 or CEP 330; preprofessional standing in the College of Education.

428 GENERAL PRINCIPLES OF SECONDARY EDUCATION
(3 + 0) 3 credits
Basic orientation and preparation for supervised teaching. To be taken as part of the professional semester. Corequisite: C I 457.

429, 629 METHODS OF TEACHING ENVIRONMENTAL SCIENCE
(1 + 0 per credit) 2 or 3 credits
Methods of teaching environmental science. Special emphasis on outdoor education methods. Materials and media for effective teaching. Prerequisite: 9 credits in science and a science methods course; preprofessional standing in the College of Education.

430, 630 KINDERGARTEN EDUCATION (1 + 0 per credit) 2 or 3 credits
Practical problems of organizing kindergarten programs. Emphasis on methods, materials and development aspects of learning.

31, 631 ESL INSTRUCTION IN THE ELEMENTARY SCHOOL
(3 + 0) 3 credits
ystematic instruction to help ESL students (1) adjust to school; (2) acquire nglish for self-help and for extended interaction; (3) develop English for extended learning. Prerequisite: ENGL 281 or C I 450.

432, 632 MICROCOMPUTERS IN EDUCATION (2 + 3) 3 credits
Uses of microcomputers in education, microcomputer operations, hardware/software selection, work processing and LOGO. Applied outcomes applicable to the classroom for teachers seeking a practical knowledge of how to operate and utilize microcomputers in education. Prerequisite: C I 290.

433, 633 CREATIVE EXPERIENCES IN ELEMENTARY EDUCATION
(1 + 0 per credit) 1 to 3 credits
Analysis of the nature of creative expression including art, music, movement, drama and creative thinking. Prerequisite: EAHE 101.

434, 634 CLASSROOM MANAGEMENT TECHNIQUES (3 + 0) 3 credits
Major aspects of classroom management including the physical arrangement of the classroom, scheduling, daily routines and procedures, models of discipline and methods for dealing with behavior problems. Corequisite: C I 451, 453.

435, 635 PROGRAMMING LANGUAGES (2 + 3) 3 credits
Educational applications of programming languages. LOGO, BASIC and PASCAL are offered on a rotating basis according to student need. Prerequisite: C I 290, 488, 688.

436, 636 TEACHER APPLICATIONS OF MICROCOMPUTERS
(2 + 3) 3 credits
Strategies and techniques for effective use of microcomputers in the classroom. Topics include software evaluation, authoring systems, utility programs, classroom management uses and new technologies. Prerequisite: C I 290, 432, 632.

437, 637 LAW, SOCIETY AND EDUCATION (3 + 0) 3 credits
Effects of judicial decisions upon society and education; interactions among the law, society and education. Prerequisite: C I 270 or CEP 330.

438, 638 TEACHING WRITING IN THE PUBLIC SCHOOLS
(3 + 0) 3 credits
Current theory and related practices in the teaching of writing in grades K-12. Prerequisite: ENGL 321.

439, 639 THE JUNIOR HIGH SCHOOL/MIDDLE SCHOOL (3 + 0) 3 credits
Development, basic philosophy and functions. Psychological and educational foundations. Problems and practices in administration, curriculum, instruction, guidance and student activities. Prerequisite: C I 270 or CEP 330.

440, 640 THE INTEGRATED CURRICULUM (3 + 0) 3 credits
Integration of subject matter into a functional learning situation. Attention is given to curricular areas and methods of instruction. Prerequisite: C I 270 or CEP 330.

441, 641 CURRICULUM DEVELOPMENT IN THE SOCIAL STUDIES
(3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the social studies. Prerequisite: C I 421 or 463.

442, 642 CURRICULUM DEVELOPMENT IN MATHEMATICS
(3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of mathematics. Prerequisite: C I 422 or 464.

443, 643 CURRICULUM DEVELOPMENT IN THE LANGUAGE ARTS
(3 + 0) 3 credits
Research and curriculum studies dealing with the content and procedures of the language arts. Prerequisite: C I 423 or 466.

444, 644 CURRICULUM DEVELOPMENT IN SCIENCE (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the science program. Prerequisite: C I 424 or 465.

445, 645 LITERACY DEVELOPMENT FOR ESL STUDENTS
(3 + 0) 3 credits
Second language proficiency and literacy development; whole language approaches to second language literacy; enhancing transfer of literacy tasks in the regular classroom.

446, 646 CURRICULUM DEVELOPMENT IN SECOND LANGUAGE EDUCATION (3 + 0) 3 credits
Organization trends and curriculum issues of second language programs; materials adaptation and development for oral and written discourse; innovations in L2 curricula. Prerequisite: ENGL 281 or C I 450.

447, 647 CURRICULUM DEVELOPMENT IN VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the vocational, technical and industrial education program. Prerequisite: C I 427.

448, 648 CURRICULUM DEVELOPMENT IN ECONOMICS EDUCATION (3 + 0) 3 credits
Recent curriculum developments in economics education, review of pertinent literature, and development of techniques for imparting basic concepts of economics. Prerequisite: C I 421 or 463. Meets new teacher education certification requirements.

449, 649 CURRICULUM DEVELOPMENT IN ENVIRONMENTAL EDUCATION (1 + 0 per credit) 2 or 3 credits
Development of the school curriculum in the area of environmental education. Special emphasis is given to school and school-camp programs. Activities for promoting the acquisition of environmental concepts are demonstrated. Prerequisite: 6 credits of science.

450 SECONDARY SCHOOL PRACTICUM (2 + 1) 3 credits
General methods with field experience in the high school. Prerequisite: C I 350.

451 SUPERVISED TEACHING IN THE ELEMENTARY GRADES
(0 + 2½ per credit) 4 to 12 credits
Observation, planning and teaching of units, classroom management, participation and direction of school activities, pupil and parent conferences. Prerequisite: meet screening criteria. (See statement under Supervised Teaching.)

452, 652 ADVANCED SUPERVISED TEACHING (0 + 2) 1 to 6 credits
Supervised teaching experience in elementary, special or secondary education, beyond that required for original certification.

453 SUPERVISED TEACHING WITH EXCEPTIONAL CHILDREN
(0 + 2½ per credit) 4 to 16 credits
Practical experience in the classroom management and teaching of exceptional children: (a) mental retardation, (b) speech therapy, (c) learning disabilities, (d) emotionally handicapped. Prerequisite: C I 310, 311, 418, 471; meet screening criteria.

454 SUPERVISED TEACHING IN PHYSICAL EDUCATION: GRADES 1 TO 6 1 to 6 credits
Experience teaching physical education under supervision in an elementary

school. Not applicable for teaching other elementary subjects. Prerequisite: meet screening criteria.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0 + 2½ per credit) 5 to 10 credits
Experience teaching major and/or minor field under supervision in either middle school or senior high school. Prerequisite: meet screening criteria. (See statement under Supervised Teaching.)

458, 658 THE MICROCOMPUTER AS A TOOL (2 +) 3 credits
Advanced applications of educational tool software such as word processors, data base managers, spreadsheets and graph packages. Prerequisite: C I 290, 432, 632.

459 PRACTICUM IN VOCATIONAL EDUCATION 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government. Written progess reports are prepared periodically. Maximum of 6 credits.

461, 661 DEVELOPMENT OF VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits
History, development and current status of vocational and technical education programs. Societal conditions that led to these programs. Prerequisite: C I 250 or CEP 330.

462, 662 VOCATIONAL EDUCATION (3 + 0) 3 credits
Nature and purposes of vocational education, including vocational-technical and distributive education; social and economic values for public school programs. Prerequisite: C I 457 or equivalent.

463 SOCIAL STUDIES IN THE ELEMENTARY SCHOOL (2 + 3) 2 or 3 credits
Teaching content and procedures for the social studies in elementary school classrooms. Development of instructional materials and techniques. Prerequisite: preprofessional standing in the College of Education.

464 MATHEMATICS IN THE ELEMENTARY SCHOOL (2 + 3) 2 or 3 credits
Mathematical and psychological bases for scope, sequence and appropriate instructional stategies in elementary school mathematics. Prerequisite: education major.

465 SCIENCE IN THE ELEMENTARY SCHOOL (2 + 3) 2 or 3 credits
Materials, procedures, classical techniques in the teaching of science to children, K-6. Public school practicum reinforces the campus based instruction. Prerequisite: preprofessional standing in the College of Education.

466 TEACHING OF ELEMENTARY LANGUAGE ARTS AND LITERATURE (3 + 3) 4 credits
Language needs of children with emphasis on written expression, language skills, speaking and listening. Language development as related to individual and cultural differences. Content and procedures for teaching language arts and children's literature and integrating literature of all groups in the total elementary school curriculum. Prerequisite: preprofessional standing in the College of Education.

467, 667 TEACHING WRITING THROUGHOUT THE CURRICULUM, K-12 (1 + 0 per credit) 1 to 4 credits
Focus on writing for learning in all subject areas and at all grade levels. Introduction to current practices in the teaching of writing as well as frequent writing by participants in the course.

468 READING AND LANGUAGAE ARTS IN LOWER ELEMENTARY GRADES (3 + 3) 3 or 4 credits
Learning and instruction in reading, writing, oral language, and literature for the primary grades. Includes planning and teaching lessons in public school classrooms.

469 READING AND LANGUAGE ARTS IN UPPER ELEMENTARY GRADES (3 + 3) 3 or 4 credits
Learning and instruction in reading, writing, oral language and literature for the intermediate grades.

471, 671 ASSESSMENT FOR SPECIAL EDUCATION TEACHERS (3 + 3) 4 credits
Methods for assessing handicapped children: motor, perceptual, academic language, self help skills, both formal and informal. Interpretation of assessment information and application to program needs. Prerequisite: C I 311.

474, 674 CATALOGING AND ORGANIZATION OF LIBRARY MATERIALS (3 + 0) 3 credits
Cataloging of books and other library materials. Includes practice in working with Dewey and Library of Congress "classification systems," principles of entry and cross referencing and organization of periodicals. Prerequisite: C I 301 or equivalent.

475, 675 SUPERVISED LIBRARY PRACTICE (0 + 2 per credit) 1 to 4 credits
Opportunities for supervised library practice under the direction of a professionally trained librarian in a school situation. Prerequisite: C I 301, 407, 408, 474, 476 or equivalent.

476, 676 ADMINISTRATION OF THE SCHOOL LIBRARY (3 + 0) 3 credits
Includes functions of school library. Relationship of library to school's total instructional program. Preparation of library budget. Other problems of library administration. Prerequisite: C I 301, 407, 408, 474 or equivalent.

477, 677 NONPRINT MATERIALS IN THE SCHOOL LIBRARY (3 + 0) 3 credits
Selection, acquisition, organization, storage and maintenance of films, filmstrips, recordings, pictures, maps, charts, computer software/courseware and realia in libraries and media centers. Prerequisite: C I 301 or equivalent.

480, 680 INDEPENDENT STUDY IN CURRICULUM AND INSTRUCTION (0 + 2 per credit) 1 to 3 credits
Action or library research in an appropriate area of curriculum and instruction. Maximum of 6 credits. Prerequisite: C I 440 or other curriculum course.

481, 681 SPECIAL PROBLEMS IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 1 to 6 credits
Specialized instruction designed to develop depth in understanding of a current education problem of the inservice teacher. Maximum of 12 credits, only 6 of which may be applied toward any degree. Prerequisite: C I 440 or other curriculum course. (Same as AGED 481, 681.)

482, 682 FIELD STUDIES IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 2 or 3 credits
Intensive study on organization and interpretation of data relative to selected problems such as curriculum development, parent-teacher relations, grouping of pupils. Maximum of 12 credits. Prerequisite: C I 440 or other curriculum course. (Same as AGED 482, 682.)

483, 683 SPECIAL PROJECT WORKSHOP IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 1 to 3 credits
Emerging problems in curriculum and instruction. Maximum of 12 credits.

484, 684 WORKSHOP IN VOCATIONAL EDUCATION (1 + 0 per credit) 1 to 6 credits
Modern developments in vocational and technical education programs; local vocational education and administration and supervision, agriculture, home economics, trades and industries, business and office occupations, health occupations, technical occupations, marketing and distributive occupations and vocational guidance. Maximum of 6 credits.

486, 686 WORKSHOP IN SCHOOL LIBRARY PROBLEMS (2 + 0) 2 credits
Problems pertaining to administration and operation of a school library. Discussed from point of view of the teacher-librarian. Prerequisite: C I 301, 407, 408, 474 or equivalent.

487, 687 SPECIAL TOPICS 1 to 3 credits *S/U only*
Specialized instruction designed to develop breadth of understanding in current curriculum and instruction topics for elementary, secondary and special education teachers. Maximum of 6 credits.

488, 688 CURRICULUM INTEGRATION: METHODOLOGY AND APPLICATIONS (2 + 3) 3 credits
Techniques for integrating computing activities into the general curriculum. Emphasis on the interrelationship between computers and the curriculum. Prerequisite: C I 290, 432, 632.

489, 689 SPECIAL TOPICS IN EDUCATIONAL COMPUTING (1 + 3) 2 credits
Specialized instruction in educational computing. Topics may include authoring systems, programming, critical thinking and computers, special education applications, graphics, word processing and creative writing, etc. Prerequisite: C I 290, 432, 632.

490, 690 MICROCOMPUTER COURSEWARE DESIGN (2 + 3) 3 credits
Introduction to instructional design of courseware in education and microcomputer programming. Emphasis on principles of courseware development and evaluation and an understanding of microcomputer commands and language. Prerequisite: C I 280 or equivalent.

491, 691 PRODUCTION AND DESIGN OF MEDIA MATERIALS (3 + 0) 3 credits
Preparation and use of graphics in instruction. Design and presentation of materials for slides, transparencies, models and exhibits. For teachers and librarians. Prerequisite: E L 101 or equivalent

492, 692 PHOTOGRAPHY FOR TEACHERS (2 + 3) 3 credits
Emphasizes fundamental photographic processes in education including film development, black and white enlarging, black and white and color slide development, lighting arrangements, portrait procedures, photographic

displays, technical and operational lab aspects of the field. Prerequisite: E L 101 or equivalent.

493, 693 AUDIOVISUAL METHODS IN TEACHING (3 + 0) 3 credits
For both elementary and secondary students. Principles and application of both projected and nonprojected materials in audiovisual education. Prerequisite: E L 101 or equivalent.

494, 694 EDUCATIONAL MOTION PICTURE PRODUCTION (3 + 0) 3 credits
Idea development, research, planning and production of instructional motion pictures. Script writing, filming, editing and sound systems and applications, supervision of budget, personnel and content during film preparation. Prerequisite: C I 493 or equivalent.

495, 695 PRACTICUM IN EDUCATIONAL MEDIA (0 + 2 per credit) 1 to 3 credits
Supervised experiences in designing, developing and evaluating instructional

498, 698 SECOND LANGUAGE ACQUISITION IN SCHOOL (3 + 0) 3 credits
Theoretical foundations of classroom interaction and second language acquisition. Providing for real oral and written discourse in a second language. Prerequisite: ENGL 281 or C I 450.

550 INTERNSHIP SEMINAR (2 + 0) 2 credits *S/U only*
Examination of the experiences, concerns, and professional growth occurring during the supervised internship: (a) elementary education, (b) special education and dual elementary/special education. Corequisite: C I 551.

551 SUPERVISED INTERNSHIP (0 + 3 per credit) 12 to 16 credits
(a) Elementary education, (b) special education, (c) secondary education, (d) dual elementary/special education, (e) dual secondary/special education.

602 READING AND LANGUAGE ARTS IN THE LOWER ELEMENTARY GRADES (2 + 3) 3 credits
Advanced work in developmental reading including new developments, techniques and methods which are related to the primary grades. Prerequisite: C I 300.

603 READING IN THE UPPER ELEMENTARY GRADES (2 + 3) 3 credits
Advanced work in development reading for the reading teacher and the subject-matter teacher; including new developments, techniques and methods which are related to the upper elementary grades. Prerequisite: C I 300.

605 LITERACY INSTRUCTION: INDIVIDUAL AND SMALL GROUP (3 + 3) 4 credits
Apprentice teaching in center for learning and literacy; emphases on diagnostic teaching, small group instruction, corrective and remedial techniques, and applications in the classroom. Prerequisite: C I 300, 402, or 403.

611 PHYSICAL AND MULTIPLE DISABILITIES (3 + 0) 3 credits
Definitions, classification, etiology, and treatment of individuals with disabilities such as cerebral palsy, mental retardation, spina bifida, and epilepsy. Prerequisite: C I 310 or 409.

612 INSTRUCTION IN SEVERE BEHAVIOR DISORDERS (3 + 0) 3 credits
Behavior and learning management and program development for students with severe behavior disorders, including autism. Prerequisite: C I 311.

621 TEACHING READING TO OLDER STUDENTS (3 + 2) 3 credits
Emphasis on diagnostic teaching, instruction, special needs, and interrelated areas of reading, writing and spelling development. (a) Correction and remediation, (b) dignosis. Prerequisite: C I 468, 469, 603, 604, or 402, 602.

623 FOUNDATIONS OF EARLY CHILDHOOD SPECIAL EDUCATION (3 + 0) 3 credits
Introduction to special education programs for children from birth to age five with handicaps. History, legal foundation and service delivery models. Prerequisite or corequisite: C I 310.

624 INSTRUCTION OF CHILDREN WITH SPECIAL NEEDS: BIRTH TO TWO (2 + 0) 2 credits
Curriculum developments and instructional strategies for teaching infants and toddlers with disabilities. Includes a practicum. Prerequisite or corequisite: C I 310.

625 INSTRUCTION OF CHILDREN WITH SPECIAL NEEDS: AGES THREE TO FIVE (2 + 0) 2 credits
Curriculum developments and instructional strategies for teaching young children with disabilities. Includes a practicum. Prerequisite or corequisite: C I 310.

666 FOUNDATIONS OF LITERACY (3 + 0) 3 credits
Intended for practicing teachers. Contemporary theoretical and pedagogical issues in literacy, preschool-secondary. Comprehension, word knowledge, social/environmental/psycholinguistic factors in reading and writing development.

700 SUPERVISION OF STUDENT TEACHING (2 + 0) 2 credits
Designed primarily for public school teachers who are functioning as cooperating teachers in the student teaching program.

701 FIELD WORK AND CLINICAL PRACTICE IN READING (1 + 5) 3 credits
Practice in reading with emphasis upon clinical diagnosis, prognosis and remediation. Maximum of 6 credits. Prerequisite: C I 606.

702 READING CLINIC (1 + 5) 3 credits
Administration of the reading clinic. Observation, planning and management of the pupil's diagnosis and remediation as well as staffing and parent conference. Maximum of 6 credits. Prerequisite: C I 701.

705 ADVANCED HUMAN GROWTH AND DEVELOPMENT (3 + 0) 3 credits
Emphasis on implications of human growth and development for the curriculum. Application and examples directed to the teaching profession. Prerequisite: C I 270 or equivalent.

706 EDUCATIONAL USES OF TELEVISION (3 + 0) 3 credits
Analysis of trends in utilization of television and video tape recordings. Program production, evaluation and methods of teaching with these media.

707 MODERN TECHNOLOGY IN EDUCATION (3 + 0) 3 credits
New and emerging technological advances in multimedia systems of instruction. Included are programmed instruction, audio and visual media and communication labs. Emphasis on current research and experimentation in this area.

708 ADVANCED MEDIA DESIGN AND PRODUCTION (3 + 0) 3 credits
Comprehensive multi-media modules designed around individually chosen topics and produced in class. Emphasis placed on quality production, organization, continuity and effective communication of topic. Prerequisite: C I 491, 691 or equivalent.

710 ASSESSMENT OF THE SEVERELY HANDICAPPED (3 + 0) 3 credits
Assessment of the intellectual, motor, adaptive and behavioral functioning of severely handicapped children during various developmental periods. Includes practicum tailored to one area of severity. Prerequisite: C I 471, 671.

711 ASSESSMENT OF STUDENTS WITH MILD HANDICAPS (3 + 0) 3 credits
Strategies for assessing children with mild handicaps: motor, perceptual, academic, language, and daily living skills. Interpretation of assessment information and application to program needs. Prerequisite: C I 311. Corequisite: C I 748.

712 ASSESSMENT OF INFANTS/PRESCHOOLERS WITH SPECIAL NEEDS (3 + 0) 3 credits
Assessment of cognitive, physical, communication, social, and self-help skills of infants, toddlers, and young children with special needs. Includes assessment practicum. Prerequisite: C I 310.

713 ORGANIZATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Problems of organization of public school programs for exceptional children. Involves the planning and programs and facilities for the exceptional child in public and private institutions. Prerequisite: C I 413, 453.

714 CAREER AND COMMUNITY LIFE FOR SEVERELY HANDICAPPED (3 + 0) 3 credits
Theoretical and applied study of the self help, prevocational, career and community life needs of the moderate to profoundly handicapped, including the personal and community services available to help in their transition. Prerequisite: C I 417.

715 EDUCATION OF THE GIFTED (1 + 0 per credit) 2 or 3 credits
Consideration of educational programs and procedures to develop stimulating environments for the maximum development of gifted or superior children. Specific cases and demonstration. Prerequisite: C I 310.

716 TEACHING STUDENTS WITH SEVERE LEARNING DISABILITIES (3 + 0) 3 credits
Principles, methods and materials appropriate for instruction of the severely learning disabled students.

717 BEHAVIOR DISORDERS (3 + 1) 3 credits
Survey of the field of behavior disorders including characteristics, contributing factors, and an overview of interventions in school and related settings.

718 TRENDS AND ISSUES IN SPECIAL EDUCATION (3 + 0) 3 credits
Study of research pertaining to physical, mental, emotional and social

characteristics of exceptional children. Emphasis on the implications of research for program development. Prerequisite: C I 413.

719 SEVERE LEARNING DISABILITIES (3 + 0) 3 credits
Survey of the field of learning disabilities including characteristics, contributing factors, and an overview of interventions in school and related settings.

720 ADVANCED METHODOLOGY (3 + 0) 3 credits
Study and evaluation of innovative teaching in elementary and secondary schools. Prerequisite: C I 451, 453 or 457 and a curriculum course.

721 EVALUATION OF CLASSROOM LEARNING (3 + 0) 3 credits
Construction and use of classroom tests, performance instruments, and other methods of evaluating learning. Prerequisite: C I 451, 453 or 457.

722 ADVANCED BEHAVIOR MANAGEMENT IN SEVERE HANDICAPS (3 + 0) 3 credits
Skills in management of behavior problems characteristic of individuals with severe handicaps through functional analysis and management of variables influencing behavior. Prerequisite: PSY 406, 606.

726 BILINGUAL AND IMMERSION EDUCATION (3 + 0) 3 credits
Basic principles of bilingualism; research and practice in immersion and bilingual education programs; sociocultural perspectives on bilingual education.

728 PROBLEMS IN TEACHING (1 + 0 per credit) 1 to 6 credits
Research projects required of each student in the field of special interest. (a) Social studies, (b) English, (c) science, (d) mathematics, (e) business education, (f) foreign language, (g) industrial education, (h) bilingual-bicultural education, (j) agricultural education. Maximum of 6 credits. Prerequisite: CEP 700.

740 ELEMENTARY SCHOOL CURRICULUM (3 + 0) 3 credits
Curriculum principles as found in the historical, philosophical, sociological and psychological foundations. Emphasis on methods and techniques that meet the needs of the child. Prerequisite: C I 640 or equivalent.

741 ADVANCED CURRICULUM DESIGN IN EARLY CHILDHOOD EDUCATION (3 + 0) 3 credits
Research and curriculum studies in content and procedures. Curriculum design projects undertaken. Prerequisite: C I 705.

742 FOUNDATIONS IN ELEMENTARY EDUCATION (3 + 0) 3 credits
Philosophical, historical, sociological and psychological foundations of elementary education. Includes integrated curriculum, unit teaching, inquiry and discovery, human relations in the classroom. Prerequisite: C I 740.

744 RESEARCH APPLICATIONS IN CURRICULUM AND INSTRUCTION (3 + 0) 3 credits
Analysis of methods of research appropriate to curriculum and instruction. Application of these methods to a specific problem. Prerequisite: minimum of 9 graduate credits in education.

746 SECONDARY SCHOOL CURRICULUM (3 + 0) 3 credits
Study and discussion of development and improvement of curriculum practices, with special stress upon working out procedures suited to this area. Prerequisite: C I 440 or other curriculum course.

748 ADVANCED CURRICULUM DESIGN FOR EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Recent developments in curriculum design for exceptional children including consideration of programmed instruction and operant procedures. Corequisite: C I 711.

750 INTERNSHIP IN CURRICULUM AND INSTRUCTION (0 + 2 per credit) 3 to 6 credits
Application of course content included in C I 742 or 746 in the classroom under the supervision and direction of local school system personnel and university staff members. Prerequisite: C I 742 or 746. (Same as AGED 763.)

753 SUPERVISION AND FIELD WORK WITH EXCEPTIONAL CHILDREN (0 + 3 per credit) 3 to 6 credits
Practicum in (a) mental retardation, (b) learning disabilities, (c) gifted, (d) behavior disorders, (e) early childhood special education. Maximum of 12 credits. Prerequisite: C I 413, 453, and 748.

755 SUPERVISED TEACHING IN EDUCATION (1 + 1 per credit) 2 or 3 credits
Directed experience in college teaching consisting of the preparation, presentation and testing of material for undergraduate students in lectures, discussion sections or labs. Prerequisite: undergraduate major in the subject or equivalent.

770 SEMINAR IN EARLY CHILDHOOD EDUCATION (3 + 0) 3 credits
Observation, study and research in early childhood education. Problems of organization, administration and evaluation of programs. Prerequisite: C I 705.

771 SEMINAR IN ELEMENTARY EDUCATION 1 to 6 credits
Problems of organization, administration, curriculum, methodology, evaluation, public relations. Review of research procedures. (a) Curriculum, (b) advanced methods, (c) diagnosis and remedial, (d) evaluation, (e) administration and supervision, (f) research. Prerequisite: certification for teaching.

772 SEMINAR IN SPECIAL EDUCATION 1 to 6 credits
Consideration of special problems in organization, administration, curriculum, construction of materials, methodology and evaluation: (a) severe mentally retarded, (b) physically handicapped, (c) gifted or rapid learner, (d) emotionally handicapped, (e) culturally deprived, (f) severe learning disabilities.

773 SEMINAR IN SECONDARY EDUCATION (1 + 0 per credit) 1 to 6 credits
Study of a topic or topics of current importance in secondary curriculum, methodology, evaluation and materials. Maximum of 6 credits. Prerequisite: certification for teaching.

776 SEMINAR IN MULTICULTURAL EDUCATION (1 + 0 per credit) 1 to 6 credits
Detailed analysis of selected aspects of recent developments in methodology and pedagogical materials designed to instruct Black American, Native American, Spanish-speaking American, Asian American and other minority culture students. Maximum of 6 credits. Prerequisite: C I 420 or 620.

778 SEMINAR IN TEACHING WRITING (1 + 0 per credit) 1 to 6 credits
(See ENGL 778 for description.)

791 SPECIAL TOPICS (0 + 1) 1 credit
Selected problems related to curriculum and instruction: (a) teaching problems, (b) curriculum, (c) supervision, (d) programmed instruction, (e) elementary, (f) junior high school, (g) senior high school, (h) area problems, (j) research. Maximum of 6 credits. Prerequisite: C I 440 or equivalent.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 12 credits

Inactive Courses

349 TEACHING OF SECONDARY MUSIC (2 + 0) 2 credits
371 UNDERSTANDING CHILD BEHAVIOR (1 + 0 per credit) 2 or 3 credits
374 HEALTH INSTRUCTION METHODS FOR SECONDARY TEACHERS (2 + 0) 2 credits
460, 660 ADULT EDUCATION (1 + 0 per credit) 1 to 6 credits
470, 670 ADVANCED STUDY OF PROBLEMS IN CHILD DEVELOPMENT (1 + 0 per credit) 2 or 3 credits
774 SEMINAR IN VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits

ECONOMICS (EC)

101 PRINCIPLES OF MACROECONOMICS (3 + 0) 3 credits
Introduction to the determination of levels of national income, employment and prices and the basic causes of fluctuations of these levels.

102 PRINCIPLES OF MICROECONOMICS (3 + 0) 3 credits
Introduction to the theory of relative prices; the allocation of productive resources among alternative uses in the production of national output and its distribution.

261 PRINCIPLES OF STATISTICS I (3 + 0) 3 credits
Probability and major probability distributions; sampling theory; descriptive statistics; measures of central tendency and dispersion; index figures; time series. Prerequisite: MATH 110 or equivalent.

262 PRINCIPLES OF STATISTICS II (3 + 0) 3 credits
Statistical inference, estimation, hypothesis testing; simple linear regression and correlations; analysis of the variance. Prerequisite: EC 261.

UPPER-DIVISION COURSES: Business majors must have satisfactorily completed the entire lower-division business core (see section on *Upper-Division Courses* in the College of Business Administration section).

301 COMPARATIVE ECONOMIC SYSTEMS (3 + 0) 3 credits
Analysis of the economic institutions of capitalism and other economic systems. Prerequisite: EC 101, 102.

303 MONEY AND BANKING (3 + 0) 3 credits
Nature and functions of money, functions and history of banks, Federal Reserve System; monetary theory and policy in relation to employment, growth and price levels. Prerequisite: EC 101, 102.

321 INTERMEDIATE PRICE THEORY (3 + 0) 3 credits
Analysis of the price mechanism and the determination of resource allocation, output composition and income distribution in a market economy. Prerequisite: EC 101, 102.

322 INTERMEDIATE INCOME THEORY (3 + 0) 3 credits
Analysis of income, output, employment, and price-level determination in a market economy. The role of fiscal and monetary policy in promoting stability and growth. Prerequisite: EC 101, 102.

365 LABOR ECONOMICS (3 + 0) 3 credits
Theoretical materials relating to the economic analysis of labor problems and the descriptive materials relating to unionism and collective bargaining. Prerequisite: EC 101, 102.

367 COMPARATIVE LABOR MOVEMENTS (3 + 0) 3 credits
Analysis of labor movements of Europe and developing countries emphasizing the relationships between unions, political parties, and governments; the importance of collective bargaining and union structure. Prerequisite: EC 101, 102.

403, 603 MONETARY AND FINANCIAL ECONOMICS (3 + 0) 3 credits
Detailed analysis of the role played by money and monetary institutions in the determination of the general levels of output, employment and prices. Prerequisite: EC 303.

410, 610 SEMINAR IN SOCIAL ECONOMICS (3 + 0) 3 credits
Advanced analysis of current economic problems. Maximum of 6 credits. No topic may be repeated for credit.

411, 611 ECONOMIC AND SOCIAL ASPECTS OF GAMING AND GAMBLING (3 + 0) 3 credits
Analysis of topics relevant to gambling, including game strategies and odds-making, gambling behavior, economics of the gaming industry, compulsive gambling and gambling and the law.

431, 631 INTRODUCTION TO MATHEMATICAL ECONOMICS (3 + 0) 3 credits
Mathematical formulation of economic theory with principal consideration given to the construction of deterministic models of economic behavior. Prerequisite: MATH 265, EC 321.

441, 641 INTRODUCTION TO ECONOMETRICS (3 + 0) 3 credits
Application of statistical techniques for the purpose of testing and explaining economic relationships; integration of economic theory with observed economic phenomena. Useful for economic and business forecasting. Prerequisite: EC 101, 102, 262 or equivalent.

451, 651 PUBLIC FINANCE (3 + 0) 3 credits
Appraisal of the effects of government financial policies. Government expenditures, taxation, government borrowing and indebtedness and fiscal policy are considered. Prerequisite: EC 101, 102.

454, 654 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY (3 + 0) 3 credits
Interrelationships between industrial structure, conduct and performance. Implications for public policy with an emphasis on antitrust law. Prerequisite: EC 101, 102.

456, 656 ECONOMICS OF REGULATED INDUSTRIES (3 + 0) 3 credits
Economic and legal bases of the public utility concept; rate base regulation, rate structures in electric, gas and communication industries; public power; the transportation industry. Prerequisite: EC 101, 102.

457, 657 LAW AND POLITICS (3 + 0) 3 credits
Examines economic efficiency implications and objectives of legal institutions and legal rulemaking; including common law, public regulation of the market and legal procedures. Prerequisite: EC 102.

458, 658 INTERNATIONAL ECONOMICS (3 + 0) 3 credits
Analysis of the theory of international trade, balance of payments, commercial policies; international institutions and theory of international economic integration. Prerequisite: EC 101, 102.

459, 659 FUTURE DEVELOPMENT (3 + 0) 3 credits
Introduction to the world's development problems such as population, food, scarcity of nonrenewable resources, growing inequality between nations and within nations, possible socioeconomic consequences of those problems. Prerequisite: EC 101, 102.

463, 663 ECONOMIC HISTORY OF EUROPE (3 + 0) 3 credits
Economic and social background of European national and international development with emphasis upon the period 1500 to present. Prerequisite: EC 101, 102.

464, 664 ECONOMIC HISTORY OF THE UNITED STATES (3 + 0) 3 credits
Origin and development of economic institutions including industry, agriculture, commerce, transportation, labor and finance. Analysis of the economic progress of the U.S. Prerequisite: EC 101, 102.

471, 671 URBAN ECONOMICS (3 + 0) 3 credits
Exploration of the foundation of urban economic theory and planning. Primary emphasis placed upon research into urban problems and policy formulation.

472, 672 REGIONAL ECONOMICS (3 + 0) 3 credits
Systematic analysis of the problems of economic growth and stability of subnational regions. Trade, location, interregional competition and structural economic analyses are considered. Prerequisite: EC 101, 102. (Same as AGEC 472.)

481, 681 HISTORY OF ECONOMIC DOCTRINES (3 + 0) 3 credits
Development of classical political economy; the orthodox tradition in political economy in the 19th century; the foundation of economic doctrine in the 20th century. Prerequisite: EC 101, 102.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

703 ADVANCED MONETARY AND FINANCIAL ECONOMICS (3 + 0) 3 credits
Comprehensive and critical examination of monetary theories. Major topics include the quantity theory, liquidity preference theory, money markets and money in macroeconomic markets. Prerequisite: EC 322.

721 ADVANCED PRICE THEORY (3 + 0) 3 credits
Advanced analysis of production, pricing, resource allocation and income distribution. Prerequisite: EC 321.

722 ADVANCED INCOME THEORY (3 + 0) 3 credits
Advanced analysis of the determinants of national income and the price level. Theories of growth and fluctuations in the economic system. Prerequisite: EC 322.

731 QUANTITATIVE METHODS IN ECONOMICS (3 + 0) 3 credits
Selected topics in the uses of mathematics and statistics in economic analysis. Prerequisite: EC 262, MATH 265.

751 ECONOMICS OF THE PUBLIC SECTOR (3 + 0) 3 credits
Theory of local, state and federal expenditures and revenues. Economic effects of alternative policies and decision-making processes of the public sector are emphasized. Prerequisite: EC 451.

759 ECONOMIC GROWTH AND DEVELOPMENT (3 + 0) 3 credits
Economic, social and political factors in economic development with special emphasis on low income countries. Programs for accelerated development and problems of financing are considered. Prerequisite: EC 458, 459.

764 SEMINAR IN AMERICAN ECONOMIC HISTORY (3 + 0) 3 credits
Advanced analysis of trends in U.S. economic history, including the industrialization process, economic factors influencing the Civil War, the Great Depression and post-World War II economic growth. Prerequisite: EC 464.

765 SELECTED TOPICS IN LABOR ECONOMICS (3 + 0) 3 credits
Analysis of labor force concepts and measurements, labor markets and labor mobility, wage theory and collective bargaining and macroeconomic behavior of employment and earnings. Prerequisite: EC 365.

780 BUSINESS AND PUBLIC POLICY (3 + 0) 3 credits
(See B A 780 for description.)

781 SEMINAR IN ECONOMIC DOCTRINES (3 + 0) 3 credits
Development of the critical method in the study of economic doctrines. Prerequisite: EC 481.

793 INDEPENDENT STUDY 1 to 3 credits
Advanced study and research in selected topics. Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

103 INTRODUCTION TO ECONOMIC EDUCATION (3 + 0) 3 credits
109 ECONOMIC GEOGRAPHY (3 + 0) 3 credits

200 ECONOMIC DEVELOPMENT OF WESTERN CIVILIZATION (3 + 0) 3 credits
208 ECONOMICS OF SOCIAL INCOME REPORTING (3 + 0) 3 credits
460, 660 AMERICAN ECONOMIC SYSTEMS (3 + 0) 3 credits
473, 673 BUSINESS FLUCTUATIONS AND FORECASTING (3 + 0) 3 credits
772 REGIONAL ECONOMICS (3 + 0) 3 credits

EDUCATION

(See separate listings for:)

Counseling and Educational Psychology (CEP)
Curriculum and Instruction (C I)
Educational Leadership (E L)

EDUCATIONAL LEADERSHIP (E L)

101 EDUCATIONAL EXPERIENCE I (3 + 0) 3 credits
Introduction to the basic philosophical, sociological, psychological, historical, legal and anthropological foundations of education. Prerequisite for upper-division courses in education. Meets state certification requirements in Nevada school law.

421, 621 EDUCATION IN DEVELOPING NATIONS (3 + 0) 3 credits
Interrelations of education with economic, political and social development in selected Latin American, African, Asian and Native American cultures. The foregoing enhances an individual's ability to identify materials and understand the methodologies essential to functioning appropriately in a multi-cultural context.

422, 622 SEMINAR IN EDUCATION IN DEVELOPING NATIONS (3 + 0) 3 credits
Intensive study of student-selected topics dealing with current policies for educational development in Latin America, Africa, Asia and Native American cultures. Prerequisite: E L 421, 621 or equivalent.

700 BASIC PRINCIPLES OF EDUCATIONAL ADMINISTRATION (3 + 0) 3 credits
Foundational course for graduate students interested in school administration. Treatment of the major areas of school operations.

701 ADMINISTRATION OF SCHOOL STAFF PERSONNEL (3 + 0) 3 credits
Recruitment, selection, placement of teachers; orientation of new teachers; staff participation in salary scheduling and other aspects of economic welfare of teachers; administrator-teacher relations; codes of ethics; merit rating; certification, tenure. Prerequisite: E L 700 or equivalent.

702 SCHOOL MANAGEMENT AND DECISION MAKING (3 + 0) 3 credits
Discussion of administrative theory and practice in the context of the school setting. Needs assessment, goal setting, planning and decision making will be examined.

703 ADMINISTRATION AND CURRICULUM IMPROVEMENT (3 + 0) 3 credits
Clarifies the role of the administrator in improving curriculum and instruction in public schools.

704 ADMINISTRATION OF THE JUNIOR AND COMMUNITY COLLEGE (2 + 0) 2 credits
Presents the principles, policies and procedures for organizing and administering the junior and community college.

705 SEMINAR IN ADMINISTRATIVE PROBLEMS (0 + 1 per credit) 1 to 4 credits
Provides opportunity for advanced students to select and analyze current problems and to develop proposed solutions to such problems. Current related issues discussed. Maximum of 4 credits. Prerequisite: E L 700, 702 or equivalent.

706 ADMINISTRATION OF SPECIAL PROGRAMS (3 + 0) 3 credits
Treatment is given to the administration and supervision of specific school programs such as guidance services, pupil personnel services, vocational-technical and special education. Prerequisite: E L 700, 702 or equivalent.

707 SEMINAR IN ADMINISTRATION OF HIGHER EDUCATION (1 + 0 per credit) 1 to 4 credits
Programming, staffing and organization of higher education institutions. Maximum of 4 credits.

709 THE ADMINISTRATOR AND COMMUNITY COLLEGE CURRICULUM (3 + 0) 3 credits
Treatment is given to the unique nature of the curriculum of the community college and the justification of such offerings. Prerequisite: E L 707.

710 THE PRINCIPALSHIP (3 + 0) 3 credits
Gives specific treatment to the administration of the school unit at the elementary, middle school, junior high and senior high levels. Prerequisite: E L 700, 702 or equivalent.

711 ARTICULATION OF POSTSECONDARY EDUCATION CURRICULA (3 + 0) 3 credits
Emphasis is placed on the necessity for continuity of the curriculum of secondary education, the community college and colleges and universities. Prerequisite: E L 704, 707.

712 HISTORY OF EDUCATION (3 + 0) 3 credits
Development of educational thought and practice in Western civilization.

713 HISTORY OF EDUCATION IN THE UNITED STATES (3 + 0) 3 credits
Factors and conditions which have been influential in the shaping of educational thought, ideals, theories and practices of current American education.

715 TEACHER EVALUATION (3 + 0) 3 credits
Techniques of evaluating teachers for growth and accountability. Review current evaluation methodologies, teaching research, inservice and staff development related to teacher growth. Prerequisite: E L 700, 702 or equivalent.

716 SUPERVISORY THEORIES (3 + 0) 3 credits
Developmental supervision and corresponding supervisor techniques appropriate for teacher professional and cognitive growth. Classroom observation instruments and administrative communication skills are stressed.

718 SOCIAL FOUNDATIONS OF EDUCATION (3 + 0) 3 credits
Emphasizes the changing role of our educational system in meeting demands of our post-industrial society.

719 PHILOSOPHY OF EDUCATION (3 + 0) 3 credits
Examination and analysis of philosophical issues in education with particular reference to noted traditional and contemporary philosophers. Importance of developing a consistent personal philosophy of education.

720 ADVANCED PHILOSOPHY OF EDUCATION (3 + 0) 3 credits
Critical analysis and evaluation of philosophies of education. Implications for practice of progmatism, logical empiricism and existentialism. Prerequisite: E L 719 or equivalent.

721 COMPARATIVE EDUCATION IN DEVELOPED NATIONS (3 + 0) 3 credits
Comparative study of national ideologies and educational philosophies, and systems of education with emphasis upon Great Britain, France, the Union of Soviet Socialist Republics, Peoples Republic of China and Japan. Prerequisite: E L 421 or 621, 422 or 622 or in-depth cross-cultural experience.

722 CRUCIAL ISSUES IN EDUCATION (3 + 0) 3 credits
Problem analysis of timely issues in education analyzing their legal, historical, sociological and philosophical dimensions with focus on problems of continuing concern. Prerequisite: CEP 700.

725 PUBLIC SCHOOL FINANCE (3 + 0) 3 credits
Study of local, state and federal revenue sources used to support public education. State aid, taxation and current issues are emphasized. Prerequisite: E L 700, 702 or equivalent.

726 SCHOOL BUSINESS MANAGEMENT (3 + 0) 3 credits
The administration of school insurance, transportation, food services, purchasing, inventory control, state and federal accounting systems and budgeting procedures. Prerequisite: E L 725 or equivalent.

727 SEMINAR IN SCHOOL FINANCE (0 + 1 per credit) 1 to 4 credits
Specific problems related to financing public education on the local, state and national levels. Prerequisite: E L 725 or 726.

730 THE EDUCATIONAL PLANT (3 + 0) 3 credits
Specialized classroom treatment to the theoretical and practical procedures in developing educational specifications for the school plant and planning the school survey. Prerequisite: E L 730 or equivalent.

731 SCHOOL SURVEYS AND EDUCATIONAL FACILITIES (3 + 0) 3 credits
Master planning for school districts involving the details of programming, site selection, construction, equipment and student enrollment projections. Laboratory work. Prerequisite: E L 700, 702 or equivalent

734 SPECIAL EDUCATION LAW (3 + 0) 3 credits
Case law with special consideration given to litigation relating to handicapped students and school officials. Prerequisite: E L 700 or equivalent.

735 THE LAW OF PUBLIC EDUCATION (3 + 0) 3 credits
Examination of statutory and case law with special consideration given to litigation relating to teachers and students. Emphasis on due process requirements. Prerequisite: E L 700, 702 or equivalent.

736 SEMINAR IN SCHOOL LAW (0 + 1 per credit) 1 to 4 credits
Special problems related to the legal aspects of education on the local, state and federal levels. Prerequisite: E L 735, 740.

740 THE LAW OF PUBLIC EDUCATION II (3 + 0) 3 credits
Legal authority of the public school with special consideration given to legal issues facing boards of education. Topics include: tort liability, religion and censorship. Prerequisite: E L 700, 702 or equivalent.

741 POLITICS POLICY AND ETHICS (3 + 0) 3 credits
Emphasis on national, state and local political structures and processes including the origin and appraisal of school policies. Key constituencies to be discussed. Prerequisite: E L 700, 702 or equivalent.

742 ADMINISTRATION OF VOCATIONAL EDUCATION PROGRAMS (3 + 0) 3 credits
Responsibilities of the administrator and directors of vocational and technical programs in the public schools and community colleges.

743 PUBLIC RELATIONS FOR SCHOOLS (3 + 0) 3 credits
Principles and practices pertaining to public relations, including the role of professional and classified personnel as well as the public.

745 SEMINAR IN ADMINISTRATION OF SPECIAL EDUCATION (1 + 0 per credit) 1 to 4 credits
Specific problems related to the administration of programs for handicapped children. Topics include finance, organization, public policy, program evaluation, supervision and conflict mediation. Prerequisite: E L 700, 734, or equivalent. Maximum of 4 credits.

746 COORDINATION OF COOPERATIVE EDUCATION PROGRAMS (3 + 0) 3 credits
The administrator has leadership responsibilities in developing an understanding of the philosophy underlying cooperative education, which includes business and office education, distributive education, home economics, industrial education, etc. Prerequisite: E L 742.

752 SEMINAR IN COLLEGE TEACHING (1 + 0 per credit) 2 to 5 credits
Topics include: (a) methods of teaching; (b) theories of learning; (c) modern technology in teaching; (d) evaluation and measurements; (e) social foundations of higher education. Prerequisite: recommendation by chairman of student's major.

753 SEMINAR FOR NEW AND CURRENT SCHOOL ADMINISTRATORS (1 + 0 per credit) 1 to 4 credits *S/U only*
In-service assistance with a focus on problem resolution and discussion related to the current literature. Maximum of 4 credits.

791 SPECIAL TOPICS (0 + 1 per credit) 1 to 4 credits
Literature review and analysis of assigned topics focusing on contemporary and future issues in school administration and other issues related to the school setting. Prerequisite: E L 700, 702 or equivalent.

792 SPECIAL PROBLEMS (1 + 0 per credit) 1 to 4 credits
Individual or group research projects in various areas of school administration and issues related to the public school setting. Prerequisite: E L 700, 702 or equivalent.

793 INDEPENDENT STUDY (0 + 1 per credit) 1 to 4 credits
Supervised readings with conferences. Maximum of 4 credits.

794 PROFESSIONAL PAPER 3 credits *S/U only*

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP (0 + 2 per credit) 3 to 9 credits
Practical experience in the student's major field under close supervision and direction of local school system personnel and university staff members. Experience areas selected by student, adviser and department chairman. Prerequisite: approval of student's advisory committee.

799 DISSERTATION 1 to 12 credits

ELECTRICAL ENGINEERING (E E)

198, 298, 398, 498 COOPERATIVE TRAINING REPORT (1 + 0) 1 credit
Preparation of written reports based on cooperative program assignments. Required of all students in cooperative programs during the summer or other semesters when on work assignments with cooperative program employers.

200 NETWORK ANALYSIS LABORATORY (0 + 3) 1 credit
Introduction to electrical engineering basic laboratory procedures and equipment. Corequisite: E E 201.

201 INTRODUCTION TO NETWORK ANALYSIS (3 + 0) 3 credits
Introduction to analysis methods and network theorems used to describe operation of electric circuits. Includes resistive, capacitive and inductive components in DC and AC circuits. Prerequisite: PHYS 202; electrical engineering majors.

202 MATERIALS IN ELECTRICAL ENGINEERING (2 + 0) 2 credits
Properties, tests and uses of materials in electrical engineering. Structural materials, conductors, insulators, semiconductors, magnetic materials. Prerequisite: CHEM 101. Corequisite: PHYS 202, M E 241.

231 COMPUTERIZED MATRIX ALGEBRA (3 + 0) 3 credits
Engineering programming applications with emphasis on vector space, its basis and transformations and computer solutions of linear equations. Introduction to FORTRAN. Prerequisite: C S 183.

233 PC ASSEMBLY LANGUAGE SYSTEMS PROGRAMMING (3 + 0) 3 credits
Intel 8086/286/386/486 family, systems programming under the DOS operating system, input/output, interfacing control, experimentation, Motorola 68000 family assembly languages. Prerequisite: C S 183. (Same as C S 233.)

290 ELECTRICAL PROJECTS LABORATORY (0 + 3 or 6) 1 or 2 credits
Offers the opportunity to undertake an independent project of the student's own interest, upon individual arrangement with a staff member. Maximum of 4 credits.

300 ELECTRONICS/MACHINERY LABORATORY (1 + 3) 2 credits
Design, construction, and testing of electronic circuits, integrated circuit measurements, motor, generator and transformer tests and characteristics. Prerequisite: C S 333; E E 301, 321, 361.

301 CIRCUITS AND SYSTEMS (3 + 0) 3 credits
Analysis and design of linear circuits and systems in the time and frequency domains. Topics include linear algebra, Laplace and Fourier transforms and system modeling. Prerequisite: E E 201; MATH 320.

320 ANALOG ELECTRONICS LABORATORY (0 + 3) 1 credit
Analysis of discrete and integrated analog electronic components. Design, construction and testing of analog electronic circuits. Corequisite: E E 321.

321 INTRODUCTION TO ELECTRONICS (3 + 0) 3 credits
Study of active devices, their behavior in analog and digital circuits. Introduction to integrated circuits as building blocks in digital and analog circuits. Corequisite: E E 301, 320.

330 COMPUTER LOGIC LABORATORY (0 + 3) 1 credit
Basic digital electronics concepts and construction techniques to reinforce theoretical concepts studied in E E 333. Prerequisite: E E 200. Corequisite: E E 333.

333 COMPUTER LOGIC DESIGN (3 + 0) 3 credits
Corequisite for all electric engineering majors: E E 330. (See C S 333 for description.)

351 ELECTRIC AND MAGNETIC FIELDS (3 + 0) 3 credits
Vector analysis approach to electric and magnetic fields and of Maxwell's equations. Prerequisite: E E 201; MATH 217; PHYS 202 and Differential Equations.

361 POWER SYSTEM FUNDAMENTALS (3 + 0) 3 credits
Basic power system analytical concepts, three-phase systems, phasers, impedance, steady-state network analysis, normalization, transmission lines, transformers, synchronous machines. Prerequisite: E E 201. Corequisite: E E 301.

380 CONTROL SYSTEMS LABORATORY (0 + 3) 1 credit
Modeling and simulation of physical engineering systems. Implementation and testing of control system designs. Corequisite: E E 386.

381 ELECTRICAL COMMUNICATION (3 + 0) 3 credits
Basic information and communication theory. Study of information measure, noise measure, pulse and continuous signal modulation and detection systems. Prerequisite: E E 301; MATH 251.

386 CONTROL SYSTEMS (3 + 0) 3 credits
Analysis and modeling of engineering systems including input-output and

state-variable descriptions. Root locus and frequency domain methods. Introduction to classical control design. Prerequisite: E E 301; M E 241. Corequisite: E E 380.

390 ELECTRICAL PROJECTS LABORATORY (0 + 3 or 6) 1 or 2 credits
Independent project of the student's own interest, upon individual arrangement with a staff member. Maximum of 4 credits.

422, 622 INTEGRATED ELECTRONICS (3 + 0) 3 credits
Examines circuit design and integrated circuit use with emphasis on operational amplifiers, active filters and analog applications. Prerequisite: E E 321.

423, 623 INTEGRATED CIRCUIT ENGINEERING (2 + 3) 3 credits
Introduction to the design and fabrication of integrated circuits. Factors limiting integrated circuits specifications are considered and new technologies are studied. Prerequisite: E E 321.

424, 624 HYBRID INTGRATED CIRCUIT ENGINEERING (2 + 3) 3 credits
Introduction to the design and fabrication of thick and thin film integrated circuits. Design, processing and applications are considered and new techniques are studied. Prerequisite: E E 321.

426, 626 BIOMEDICAL INSTRUMENTATION (2 + 2) 3 credits
(See PHSY 426, 626 for description.)

427, 627 DIGITAL ELECTRONICS (3 + 0) 3 credits
Hardware-related design considerations for combinatorial and sequential logic using integrated circuits. Includes TTL, CMOS, shift registers, arithmetic units, RAM, ROM and edge-triggered devices. Prerequisite: C S 333; E E 32.

428, 628 ELECTRONIC CAD/CAM (3 + 0) 3 credits
Impact of the computer on the process of electronic system design, manufacture and test. Computer modeling, simulation and data interfacing to the manufacturing process. Student presentations on specialized topics.

431, 631 DIGITAL COMPUTER ARCHITECTURE AND DESIGN (3 + 0) 3 credits
Design of functional digital units—memory, arithmetic units, timing and input/output devices. Topics include coding, error detection, data flow, register transfer logic, hardware design language. Prerequisite: C S 333. (Same as C S 431, 631.)

434, 634 REAL TIME COMPUTING SYSTEMS (3 + 0) 3 credits
(See CH E 434, 634 for description.)

436, 636 MICROPROCESSORS (3 + 0) 3 credits
Elementary microprocessor principles founded in electrical engineering applications. Hardware, software and interface areas analyzed. Prerequisite: C S 333. Corequisite: E E 435, 635. (Same as C S 436, 636.)

437, 637 COMPUTER GRAPHICS (3 + 1) 3 credits
(See C S 437, 637 for description.)

439, 639 ADVANCED MICROPROCESSORS (2 + 3) 3 credits
System design for techniques with emphasis on hardware and software development for typical applications. Topics include arithmetic processing, parallel processing, advanced 8-bit and 16-bit machines. Prerequisite: E E 436.

450, 650 MICROWAVE LABORATORY (0 + 3) 1 credit
Basic microwave measurements of wave progagation, components, tubes and antenna. Prerequisite: E E 451, 651. Corequisite: E E 452, 652.

451, 651 ELECTRICAL MACHINES (3 + 0) 3 credits
Fundamentals of transformers and rotating machines; dc, induction and synchronous machines. Prerequisite: E E 350.

452, 652 MICROWAVE ENGINEERING (3 + 0) 3 credits
Microwave devices, systems, components, networks, applications, microwave tubes and introductory solid-state devices, microwave measurements. Prerequisite: E E 451, 651. Corequisite: E E 450, 650.

455, 655 OPTICAL FIBER LABORATORY (0 + 3) 1 credit
Measurements of optical fiber propagation characteristics, losses, source characteristics and transmission information. Prerequisite: E E 451, 651. Corequisite: E E 458, 658.

456, 656 ELECTRACOUSTICS (2 + 3) 3 credits
Theory of sonic and ultrasonic vibrations and acoustics, including electromechanical transducers. Prerequisite: E E 351.

458, 658 FUNDAMENTALS OF OPTICAL FIBERS (3 + 0) 3 credits
Optical fiber structures, propagation characteristics, fabrication, packaging, measurements, power launching and coupling, fiber system examples. Prerequisite: E E 451, 651. Corequisite: E E 455, 655.

461, 661 POWER SYSTEM ANALYSIS (3 + 0) 3 credits
Power flow, symmetrical components, faulted system analysis, protection, stability. Prerequisite: E E 361.

463, 663 ELECTRICAL MACHINES (3 + 0) 3 credits
Fundamentals of transformers and rotating machines; dc, induction and synchronous machines. Prerequisite: E E 361.

466, 666 POWER ELECTRONICS (3 + 0) 3 credits
Semiconductor power switches. Rectifiers, a.c. voltage controllers, cycloconverters, choppers, inverters. Applications. Prerequisite: E E 321, 361.

467, 667 ELECTRIC POWER DISTRIBUTION (3 + 0) 3 credits
Distribution components, load characteristics, voltage calculations, primary and secondary systems, transformers, capactior applications. Prerequisite: E E 361.

468, 668 POWER SYSTEM PROTECTION (3 + 0) 3 credits
Elements of protective systems, relays, relaying schemes circuit interrupting devices, fault protection of radial feeders, network protective schemes and protective system reliability. Prerequisite: E E 361.

481, 681 STOCHASTIC SYSTEMS (3 + 0) 3 credits
Introduction to stochastic systems. Includes review of concepts of random variable theory, functions of two random variables, mean square estimation, nonstationary process applications. Prerequisite: E E 381; MATH 251.

482, 682 DATA COMMUNICATIONS AND COMPUTER NETWORKS (3 + 0) 3 credits
(See C S 482 for description.)

484, 684 DIGITAL SIGNAL PROCESSING (3 + 0) 3 credits
Discrete signals and systems. The Z transform. Digital filter design techniques. The Fast Fourier Transform. Modeling, analysis, and simulation of discrete random signals and systems. Prerequisite: E E 211; MATH 251.

486, 686 SAMPLED DATA CONTROL SYSTEMS (3 + 0) 3 credits
The analysis and control of feedback systems with discrete, digital and sampled data. Prerequisite: E E 386.

487, 687 MODERN SYSTEM THEORY (3 + 0) 3 credits
Modern techniques of system analysis and design, primarily in the time domain using state variable concepts. Prerequisite: E E 386.

490 ELECTRICAL PROJECTS LABORATORY (1 + 3) 4 credits
Theory and techniques of measurement on complex systems by electrical means. Prerequisite: E E 300.

491 ENGINEERING DESIGN/ANALYIS (4 + 0) 4 credits
Proposal writing, design and fabrication of a suitable project selected by the student following procedures used by industry for product design and development. Prerequisite: E E 321.

492, 692 SEMINAR 1 to 4 credits
(a) Acoustics, (b) biomedical electronics, (c) communications and networks, (d) computer engineering, (e) control systems, (f) electronics, (g) image processing, (h) machine intelligence, (j) microwave systems, (k) modeling and simulation, (m) parallel distributed processing, (n) power systems, (p) signal processing, (q) stochastic systems, (r) systems science.

493, 693 INDEPENDENT STUDY 1 to 3 credits
(a) Acoustics, (b) biomedical electronics, (c) communications and networks, (d) computer engineering, (e) control systems, (f) electronics, (g) image processing, (h) machine intelligence, (j) microwave systems, (k) modeling and simulation, (m) parallel distributed processing, (n) power systems, (p) signal processing, (q) stochastic systems, (r) systems science.

703 INFORMATION AND COMMUNICATION THEORY (3 + 0) 3 credits
(a) Information theory and coding, (b) continuous and pulsed communication systems, (c) optimum transmission and propagation techniques. Each topic may be taken for 3 credits. Prerequisite: E E 382.

713 PASSIVE AND ACTIVE NETWORKS (3 + 0) 3 credits
(a) Linear passive network synthesis, (b) linear active network synthesis. (c) nonlinear active network analysis. These courses are sequential. Prerequisite: E E 386.

715 NANOSECOND PULSE SYSTEMS (3 + 0) 3 credits
Analysis of nanosecond pulse generation, transmission and recording techniques, including study of pulse distortion. Prerequisite: E E 412, 485.

721 ADVANCED ELECTRONICS (3 + 0) 3 credits
(a) Low noise, wide band, and fast, amplifiers, active filters, (b) pulse, wave shaping and computing circuits. These courses are not sequential. Prerequisite: E E 311, 372.

731 ADVANCED SWITCHING THEORY (3 + 0) 3 credits
Shift register sequences, state assignments for edge-triggered circuits, logic decisions, multilevel logic, fault detecting and ripple design. Prerequisite: C S 333. (Same as C S 731.)

732 THEORY OF PARALLEL AND DISTRIBUTED PROCESSING (3 + 0) 3 credits
Distributed processor, interprocessor communications, distributed algorithms, parallel processing, connectionist machines, parallel algorithms. Prerequisite: C S 333. (Same as C S 732.)

733 MACHINE INTELLIGENCE (3 + 0) 3 credits
(a) Intelligent systems, (b) neural computing, (c) advanced applications. Self-organizing, self-adapting systems; sybernetics; neural networks; automated decision making and control; learning automata; expert systems application; knowledge and data engineering; pattern recognition, image processing. Prerequisite: C S 333. (Same as C S 733).

734 ADVANCED COMPUTER MODELING AND SYSTEMS ENGINEERING (3 + 0) 3 credits
Systems engineering, modeling, simulation, systems analysis, identification, verification of model. Prerequisite: C S 183; E E 311.

741 ELECTROMAGNETIC FIELDS (3 + 0) 3 credits
(a) Energy and matter in stationary and moving systems, (b) radiating structures and systems. These courses are not sequential. Prerequisite: E E 355.

751 ELECTROMAGNETIC FIELD ANALYSIS I (1 + 0) 1 credit
Calculation of electromagnetic fields in two and three dimensions in air and in the presence of iron. Use of field analysis in high energy physics, electrodynamic forces, etc. Typical examples are solved using computer techniques. Prerequisite: E E 351.

752 ELECTROMAGNETIC FIELD ANALYSIS II (1 + 0) 1 credit
Continuation of E E 751. Prerequisite: E E 751.

753 DESIGN OF ELECTRICAL DEVICES (2 + 2) 3 credits
Industrial design of electric transformers and rotating machines. Complete examples of designs are worked through. Prerequisite: E E 451. Maximum of 9 credits.

754 MICROWAVE SEMICONDUCTOR DEVICES (3 + 0) 3 credits
Microwave diodes, transistors, parametric amplifiers, multipliers, TED's IMPATTS, TRAPATT, Masers-Lasers, Josephson Juction Devices, design examples and design considerations. Prerequisite: E E 452.

756 MICROWAVE INTEGRATED CIRCUITS (MIC'S) (3 + 0) 3 credits
Development of MIC's, analysis of microstrip lines, coupled microstrip lines, microstrip, discontinuities, slot lines and coplanar lines, MIC fabrication and design of microstrip components. Prerequisite: E E 452.

757 UNCONVENTIONAL POWER SOURCES (1 + 0) 1 credit
Energy conversions devices and systems other than conventional rotating machines. Prerequisite: E E 321, 451.

758 OPTICAL FIBER COMMUNICATIONS (3 + 0) 3 credits
Propagation in optical fibers, optical receivers, detectors, amplifiers, sources, transmission links, noise considerations, optical fiber communication systems, optical networks, applications and future developments. Prerequisite: E E 458, 658.

761 SYNTHESIS OF SOLID-STATE DEVICES I (3 + 0) 3 credits
Development of the theory of solid-state devices, with particular emphasis on controlling material parameters so as to produce desired terminal characteristics. Study of the current literature is required. Prerequisite: E E 321.

762 SYNTHESIS OF SOLID-STATE DEVICES II (3 + 0) 3 credits
Principles of formation of solid-state devices to achieve the desired terminal characteristics. Energy level analysis is emphasized. Study of the current literature is required. Prerequisite: E E 321.

774 ADVANCED POWER SYSTEM ANALYSIS (3 + 0) 3 credits
(a) Computer solution of power system, (b) power system stability, (c) power system planning. Each topic may be taken for 3 credits. Prerequisite: E E 460.

781 MICROWAVES (3 + 0) 3 credits
Microwave devices and systems, including magnetrons, klystrons, traveling wave tubes and others and associated components and systems. Prerequisite: E E 451, 651.

782 RANDOM SIGNAL ANALYSIS AND ESTIMATION THEORY (3 + 0) 3 credits
Random variable and random signals, auto-correlation and cross-correlation functions. Power spectral density functions, minimal mean-quared estimation, maximal likelihood estimation, linear and extended kalman filtering.

783 MICROWAVE LABORATORY (0 + 3) 1 credit
Prerequisite: E E 321. Corequisite: E E 781.

784 COMPUTER LABORATORY (0 + 3) 1 credit
Non-von Neumann computer architectutes, including principles of parallel processing and communication between multi-processors. Current developments in new architectures such as RISC and AI machines. Prerequisite: C S 333, E E 431 or 435. (Same as C S 784.)

786 NONLINEAR CONTROL SYSTEMS (3 + 0) 3 credits
Nonlinear state equations, phase plane analysis, describing function, Liapunov stability, circle criterion, introduction to nonlinear control systems design.

787 ADVANCED SIGNAL PROCESSING (3 + 0) 3 credits
Parametric, adaptive, and model-based signal processing. Detection/estimation of signals in noise. Ultidimensional discrete systems. Adaptive array processing. Introduction to intelligent signal processing systems. Prerequisite: E E 484.

788 ADVANCED CONTROL SYSTEM THEORY II (3 + 0) 3 credits
System optimization and adaptive systems. Prerequisite: E E 486 or E E 487.

790 SEMINAR 1 to 3 credits
(a) Acoustics, (b) biomedical electronics, (c) communications and networks, (d) computer engineering, (e) control systems, (f) electronics, (g) image processing, (h) machine intelligence, (j) microwave systems, (k) modeling and simulation, (m) parallel distributed processing, (n) power systems, (p) signal processing, (q) stochastic systems, (r) systems science. (Same as C S 790.)

791 SPECIAL TOPICS 1 to 3 credits
(a) Acoustics, (b) biomedical electronics, (c) communications and networks, (d) computer engineering, (e) control systems, (f) electronics, (g) image processing, (h) machine intelligence, (j) microwave systems, (k) modeling and simulation, (m) parallel distributed processing, (n) power systems, (p) signal processing, (q) stochastic systems, (r) systems science. (Same as C S 790.)

792 SPECIAL PROBLEMS 1 to 2 credits
(a) Acoustics, (b) biomedical electronics, (c) communications and networks, (d) computer engineering, (e) control systems, (f) electronics, (g) image processing, (h) machine intelligence, (j) microwave systems, (k) modeling and simulation, (m) parallel distributed processing, (n) power systems, (p) signal processing, (q) stochastic systems, (r) systems science. (Same as C S 790.)
Special projects or studies in electrical engineering.

793 INDEPENDENT STUDY 1 to 3 credits
(a) Acoustics, (b) biomedical electronics, (c) communications and networks, (d) computer engineering, (e) control systems, (f) electronics, (g) image processing, (h) machine intelligence, (j) microwave systems, (k) modeling and simulation, (m) parallel distributed processing, (n) power systems, (p) signal processing, (q) stochastic systems, (r) systems science. (Same as C S 790.)

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 2 credits *S/U only.*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

ENGINEERING (ENGR)

201 ENGINEERING COMMUNICATION (2 + 2) 3 credits
Gathering and organization of information and the oral, written and visual presentation of that information and its meaning. Prerequisite: ENGL 102.

ENGLISH (ENGL)

New students must register for ENGL 1, 101, or 102, based on the test scores listed below. However, final placement is based on an essay written the first day of class and evaluated by the Core Writing Program. As a result of the written essay, students may be required to change their registration.

	ACT	Enhanced ACT October 1989	SAT/Verbal	TSWE
ENGL 1	16 or below	18 or below	399 or below	37 or below
ENGL 101	17 to 24	19 to 28	400 to 599	38 to 56
ENGL 102	25 to 36	29 to 36	600 to 800	57 or above
ENGL 321	Requires junior classification			

Transfer students who have completed one or more college-level composition courses are exempt from the test score requirements.

English

1 DEVELOPMENTAL WRITING (3 + 0) 3 credits *S/U only*
The writing process including paragraph development, sentence structure, usage, and grammar. Credit does nor apply to any baccalaureate degree program.

10 ORAL ENGLISH FOR NON-NATIVE SPEAKERS (3 + 0) 3 credits *S/U only*
Intensive, individualized, self-evaluative practice in the oral properties of English for professionals who need to improve their fluency (requires access to a learning laboratory or cassette recorders). Not acceptable as a substitute for ENGL 111-112. Offered by correspondence only.

11 ENGLISH LABORATORY FOR INTERNATIONAL STUDENTS (1 + 2) 2 credits
Training in conversation, reading and writing in English for international students. Designed for groups of visiting foreigners under special circumstances. Credit not to apply toward any baccalaureate degree.

101 COMPOSITION I (3 + 0) 3 credits
The process of expository essay writing; attention to strategies of invention, arrangement, and style.

102 COMPOSITION II (3 + 0) 3 credits
Academic writing includes analytic reading and writing, techniques of interpretation, argument, and research. Prerequisite: ENGL 101.

103 ENGLISH AS A SECOND LANGUAGE (3 + 0) 3 credits
Acquisition of academic English language skills for non-native speakers with emphasis in the following areas: (a) listening skills, (b) discussion and oral presentation, (c) reading skills, (d) composition and structure, (e) research and writing for graduate students, (f) ESL for teaching assistants, (g) English language for the natural science, (h) English language skills for the humanities and social sciences. Not intended for native English speakers. Maximum of 6 credits. Applicable for baccalaureate credit.

113 COMPOSITION I FOR INTERNATIONAL STUDENTS (3 + 0) 3 credits
Practice in expository writing with emphasis on the application of grammar; includes essay test writing and the multiparagraph essay. Prerequisite: pass IELC test.

114 COMPOSITION II FOR INTERNATIONAL STUDENTS (3 + 0) 3 credits
Continuation and extension of ENGL 113; includes the annotated theme and practice in technological writing. Prerequisite: ENGL 113 or equivalent. Satisfies the English requirement for international undergraduate students.

131 INTRODUCTION TO LITERATURE (2 + 0) 2 credits
Introduction to fiction, poetry and drama.

181 VOCABULARY AND MEANING (2 + 0) 2 credits
Problems of meaning, word derivation and word formation are investigated with a view to enlarging and refining a working English vocabulary. Not acceptable for the field of concentration as a substitute for ENGL 281. (Offered by correspondence study only.)

223 THEMES OF LITERATURE (2 or 3 + 0) 2 or 3 credits
Themes and ideas significant in literature. Maximum of 6 credits.

235 ENGLISH LITERATURE TO 1800 (3 + 0) 3 credits
English writings and writers from the beginnings to about 1800, e.g., *Beowulf*, Chaucer, Shakespeare, Milton, Swift.

236 ENGLISH LITERATURE, 1800 TO THE PRESENT (3 + 0) 3 credits
English writings and writers from about 1800 to the present, e.g., Blake, Keats, Browning, Arnold, Yeats, Eliot.

241 SURVEY OF AMERICAN LITERATURE (3 + 0) 3 credits
Introduction to major American writers, e.g., Franklin, Whitman, Dickinson, Twain; and important literary trends. Designed to provide a general knowledge of American literature.

244 INTRODUCTION TO FICTION (2 or 3 + 0) 2 or 3 credits
Significant works of fiction from various languages, with attention to the novel and the short story as literary forms.

253 INTRODUCTION TO DRAMA (2 or 3 + 0) 2 or 3 credits
Reading of a variety of plays with attention to special characteristics of drama.

261 INTRODUCTION TO POETRY (2 or 3 + 0) 2 or 3 credits
Reading and discussion of selected British and American poems with attention to form and content.

263 LITERATURE AND SOCIETY (3 + 0) 3 credits
Literature within its various social contexts. Includes such topics as the protrayal of society in literature and the social responsibility of the artist.

264 LITERATURE AND PSYCHOLOGY (3 + 0) 3 credits
Relationships between literature and human psychology. Includes such topics as the portrayal of consciousness in literature and the application of psychological insights.

265 NATURE IN LITERATURE (2 + 0) 2 credits
Literary expressions of man's conceptions of nature.

266 POPULAR LITERATURE (2 or 3 + 0) 2 or 3 credits
Various forms of popular writing, e.g., best-seller, the western, science fiction, the detective story.

267 WOMEN AND LITERATURE (3 + 0) 3 credits
Women writers and the ways in which women are portrayed in literature.

268 LITERATURE AND RELIGION (3 + 0) 3 credits
Literary expressions of religious experience.

271 INTRODUCTION TO SHAKESPEARE (3 + 0) 3 credits
Shakespeare's principal plays read for their social interest and their literary excellence. Not intended for students selecting a field of concentration in English.

272 KING ARTHUR AND HIS KNIGHTS (3 + 0) 3 credits
Origins and development of the Arthurian legends with readings from medieval and modern versions of the Arthurian stories.

275 CONTEMPORARY LITERATURE (2 or 3 + 0) 2 or 3 credits
Selected contemporary writers for understanding and appreciation. Emphasis on British and American figures.

281 INTRODUCTION TO LANGUAGE (3 + 0) 3 credits
Nature and function of language, including an introduction to the linguistic subsystems of modern English and the development of the English language.

291 INTRODUCTION TO LITERARY STUDY (3 + 0) 3 credits
Training in literary analysis. Designed for students intending to take upper-division courses in English.

292 GREAT BOOKS: THE GREEKS TO DANTE (3 + 0) 3 credits
Important writers of Western culture in translation, e.g. Homer, the Greek dramatists, Virgil, Ovid, Dante. (Same as FLI. 292.)

293 GREAT BOOKS: THE RENAISSANCE TO THE PRESENT (3 + 0) 3 credits
Important writers from the Renaissance to the present in translation, e.g., Racine, Moliere, Voltaire, Goethe. (Same as FLI. 293.)

295 MAJOR ENGLISH AUTHORS, BEGINNING TO 1798 (3 + 0) 3 credits
Survey of major English authors; includes training in the analysis of poetry and drama. Required of all English majors.

296 MAJOR ENGLISH AUTHORS, 1798 TO PRESENT (3 + 0) 3 credits
Continuation of ENGL 295. Includes training in the analysis of the novel and short story. Required of all English majors. Prerequisite: ENGL 295.

301-302 IDEAS, VALUES AND CULTURES I AND II (3 + 0) 3 credits each
Ideas, values and cultures as they relate to conceptions of man, society and the cosmos. Based on both Western, non-Western and woman's primary source material.

305-306 FUNDAMENTALS OF CREATIVE WRITING: FICTION (3 + 0) 3 credits each
Conducted as a writer's workshop in fiction. Continued as ENGL 405-406. Prerequisite: submission of a sample of superior creative work to instructor.

307-308 FUNDAMENTALS OF CREATIVE WRITING: POETRY (3 + 0) 3 credits each
Conducted as a writer's workshop in poetry. Continued as ENGL 407-408. Prerequisite: submission of a sample of superior work to instructor.

321 EXPOSITORY WRITING (3 + 0) 3 credits
Advanced composition in various forms of expository prose with attention to structural and stylistic problems.

322 ADVANCED EXPOSITORY WRITING (3 + 0) 3 credits
Continuation of ENGL 321 with attention to the development of a distinctive writing style. Prerequisite: ENGL 321.

335 THE ISLAMIC TRADITION (3 + 0) 3 credits
Study of the Qur'an and other literary texts of classical Islamic culture, including poetry, history, science, philosophy and their relation to Greek and Christian cultures.

337 THE BIBLE AS LITERATURE (3 + 0) 3 credits
Readings from the Old and New Testaments studied in literary, historical and cultural contexts.

339 MYTHOLOGY AND FOLKLORE (3 + 0) 3 credits
Introduction to early literature as a revelation of the human mind with some attention to folkloristic methodology.

340 MYTH AND ARCHETYPE (3 + 0) 3 credits
Modes of relationship between mythic patterns and literary expression.

341 LITERATURE OF NEVADA AND THE FAR WEST (2 + 0) 2 credits
Fiction and nonfiction of the American West by, e.g., Twain, London, Cather, Clark, Stegner.

345 LITERATURE OF ETHNIC MINORITIES IN THE U.S. (3 + 0) 3 credits
Literature of ethnic groups within the American population, such as American Indians, Blacks, Basques and Chicanos.

355 MODERN DRAMA (3 + 0) 3 credits
Drama from various nations from the late 19th century through about 1945 including, e.g., Ibsen, Chekhov, Shaw, theatre of the absurd. (Same as FLL 355.)

356 CONTEMPORARY DRAMA (3 + 0) 3 credits
Treats selected plays of the recent theatre, including current productions here and abroad.

358 SHAKESPEARE FESTIVAL (1 + 0) 1 credit
One-week field trip to Ashland, Oregon, to attend the Oregon Shakespearean Festival. Offered only during summer sessions. Not applicable toward an advanced degree in English.

404, 604 APPLIED LINGUISTICS (3 + 0) 3 credits
Modern approaches to language and linguistics. Prerequisite: ENGL 281.

405-406, 605-606 ADVANCED TRAINING IN CREATIVE WRITING: FICTION (3 + 0) 3 credits each
Continuation of ENGL 305-306.

407-408, 607-608 ADVANCED TRAINING IN CREATIVE WRITING: POETRY (3 + 0) 3 credits each
Continuation of ENGL 307-308.

410, 610 DESCRIPTIVE GRAMMAR (3 + 0) 3 credits
Modern English grammar and usage. Prerequisite: ENGL 281.

411, 611 LINGUISTICS (3 + 0) 3 credits
Studies in general linguistics. Prerequisite: ENGL 281. (Same as ANTH 411.)

413, 613 HISTORY OF THE LANGUAGE (3 + 0) 3 credits
History of English from its beginnings to the present. Prerequisite: ENGL 281.

414, 614 HISTORICAL LINGUISTICS (3 + 0) 3 credits
General principles of historical and comparative linguistics. Theories of language origin, methods of classifying language, processes of language change, techniques of reconstructing older forms of languages. Prerequisite: ENGL 281. (Same as ANTH 414, 614.)

415, 615 PHONEMICS AND COMPARATIVE PHONETICS (3 + 0) 3 credits
Phonetic phonemena that occur in languages of the world. Phoneme concept as applied to the analysis of speech sounds. Phonological structures. Prerequisite: ENGL 281 or SPA 259. (Same as ANTH 415.)

416, 616 LINGUISTIC FIELD METHODS (2 + 3) 3 credits
(See ANTH 416 for description.)

417 OLD ENGLISH (3 + 0) 3 credits
Old English language and literature for undergraduate students. Prerequisite: ENGL 281.

418 BEOWULF (3 + 0) 3 credits
Beowulf and the Germanic Heroic Age for undergraduate students. Prerequisite: ENGL 417 or equivalent.

421, 621 LITERARY CRITICISM (3 + 0) 3 credits
Major theories and methods of literary criticism.

423, 623 THEMES OF LITERATURE (2 or 3 + 0) 2 or 3 credits.
Themes and ideas significant in literature and literary history. Maximum of 6 credits.

425, 625 THE BRITISH NOVEL I (3 + 0) 3 credits
British fiction from its origins to about 1800. Readings in such authors as Defoe, Richardson, Fielding, Smollett, Sterne, Johnson, Austen.

426, 626 THE BRITISH NOVEL II (3 + 0) 3 credits
British fiction from about 1800 to World War I; readings in such authors as Austen, Scott, Dickens, Thackeray, Trollope, Eliot, Hardy.

429, 629 LANGUAGE AND CULTURE (3 + 0) 3 credits
(See ANTH 429 for description.)

430, 630 STUDIES IN COMPARATIVE LITERATURE (3 + 0) 3 credits
Literature in English and English translation, following a historical (e.g., Classicism, Romanticism, Modernism) or a formal (e.g., narrative and fiction, drama) approach. Maximum of 6 credits. (Same as FLL 430.)

431, 631 CHILDREN'S LITERATURE (3 + 0) 3 credits
History, genres, traditions and illustrations of children's books in England and America from 1697 to the present.

435, 635 TUTORING STUDENT WRITERS (2 + 1) 3 credits
Trains students to work with peers on academic writing projects; prepares students to work in University Writing Center.

436, 636 THEORIES OF SECOND LANGUAGE ACQUISITION (3 + 0) 3 credits
Survey of major theories of second language acquisition and their potential applications to language teaching. Topics include: language and behavior, language acquisition in children and adults, social and psychological factors. Prerequisite: ENGL 281, 410.

437, 637 TEACHING OF COMPOSITION (3 + 0) 3 credits
Theory and practice in teaching of composition with special emphasis on recent developments.

438, 638 TEACHING ENGLISH AS A SECOND LANGUAGE (3 + 0) 3 credits
Current methods and materials in ESL with emphasis on curriculum models and applications. Class observation at primary, secondary and university levels. Prerequisite: ENGL 281, 410.

439, 639 LANGUAGE TESTING (3 + 0) 3 credits
Theories of defining and assessing competence in English as a second language. Preparation and administration of various tests with attention to cultural bias in testing. Prerequisite: ENGL 281, 410.

441, 641 AMERICAN IDEAS (3 + 0) 3 credits
Readings in American fiction, poetry, and intellectual prose from the 17th to the 20th centuries, with emphasis on characteristic American notions.

444, 644 THE AMERICAN NOVEL I (3 + 0) 3 credits
American fiction from its origins to 1900. Readings in such authors as Cooper, Hawthorne, Melville, Clemens.

445, 645 THE AMERICAN NOVEL II (3 + 0) 3 credits
American fiction from 1900 to the present. Readings in such authors as Hemingway, Fitzgerald, Faulkner, Cather.

446, 646 AMERICAN POETRY (3 + 0) 3 credits
American poetry from the Puritans to about 1940 with emphasis on the 19th century.

451, 651 CHAUCER (3 + 0) 3 credits
Selections from the works of Chaucer read in Middle English with emphasis on the *Canterbury Tales*. Prerequisite: ENGL 281.

453, 653 LITERATURE OF THE MIDDLE AGES (3 + 0) 3 credits
Medieval writers and works from the continent, read in translation, e.g., *The Song of Roland, The Nibelungenlied,* Dante, Boccaccio.

454, 654 MEDIEVAL ENGLISH LITERATURE (3 + 0) 3 credits
Writers and works from medieval England, excluding Chaucer, e.g., *Beowulf,* Langland, *Sir Gawain and the Green Knight, Everyman.*

458, 658 DRAMA BEFORE SHAKESPEARE (3 + 0) 3 credits
Emphasizes the large body of important drama of the Middle Ages and early Renaissance.

460, 660 ELIZABETHAN AND JACOBEAN DRAMA (3 + 0) 3 credits
Plays and playwrights of the 16th and early 17th centuries, e.g., Marlowe, Jonson, Webster.

461, 661 THE RENAISSANCE (3 + 0) 3 credits
Writers of prose and poetry in 16th-century England, e.g., More, Sidney, Spenser.

463, 663 THE 17TH CENTURY (3 + 0) 3 credits
Writers in prose and poetry in England from about 1603 to 1660, e.g., Donne, Jonson, Herbert, Herrick; excluding Shakespeare and Milton.

464, 664 MILTON (3 + 0) 3 credits
Intensive study of Milton's poetry and selected prose.

465, 665 SHAKESPEARE (3 + 0) 3 credits
Reading and discussion of some of the major comedies, tragedies, and history plays.

469 INDIVIDUAL AUTHORS (Before 1800) (2 or 3 + 0) 2 or 3 credits
Undergraduate seminar on one or two authors, e.g., Pope, Boswell and Johnson, Dryden. Maximum of 6 credits.

470, 670 RESTORATION AND 18TH CENTURY DRAMA (3 + 0) 3 credits
English dramatists from about 1660 to 1800 including e.g., Wycherley, Congreve, Sheridan, Goldsmith.

471, 671 RESTORATION AND 18TH CENTURY LITERATURE (3 + 0) 3 credits
Readings in drama, poetry, shorter prose fiction and intellectual prose of such writers as Dryden, Swift, Pope, Fielding, Johnson, Goldsmith, Gray, Hume, Walpole, Blake.

475, 675 THE ROMANTIC MOVEMENT (3 + 0) 3 credits
English writers from about 1790-1832, e.g., Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.

479, 679 TOPICS IN NON-FICTION PROSE (3 + 0) 3 credits
Analysis of non-fiction prose.

481, 681 THE VICTORIAN PERIOD (3 + 0) 3 credits
Social and artistic movements of the later 19th century as revealed in English poetry and prose.

483, 683 20TH CENTURY BRITISH AND AMERICAN POETRY (3 + 0) 3 credits
Readings in such poets as Auden, Eliot, Frost, Thomas, Stevens, Yeats, Williams.

484, 684 20TH CENTURY BRITISH FICTION (3 + 0) 3 credits
Selected fiction written in English by, e.g., Conrad, Joyce, Lawrence, Woolf.

485, 685 STUDIES IN 20TH CENTURY LITERATURE (3 + 0) 3 credits
Cross-generic studies in British and American literature from approximately 1900 to 1945.

486, 686 STUDIES IN CONTEMPORARY AMERICAN LITERATURE (3 + 0) 3 credits
Cross-generic studies in American literature since World War II.

487, 687 CONTEMPORARY BRITISH LITERATURE (3 + 0) 3 credits
Cross-generic studies in British literature since World War II.

488, 688 INTERNATIONAL FICTION OF THE 19TH and 20TH CENTURIES (3 + 0) 3 credits
Masterpieces of literature from non-American and non-English origin; works will be read in translation. (Same as FLL 488, 688.)

489 INDIVIDUAL AUTHORS (AFTER 1800) (2 or 3 + 0) 2 or 3 credits.
Seminar on one or two authors, e.g., Joyce, Emerson and Thoreau, Dickens. Maximum of 6 credits.

495 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in English. Maximum of 6 credits.

531 WRITING WORKSHOP (1 to 3 + 0) 1 to 3 credits
Practicum in the teaching of writing.

533 LITERATURE WORKSHOP (1 to 3 + 0) 1 to 3 credits
Practicum in the teaching of literature.

640 EVALUATION OF ESL TEXTBOOKS AND MATERIALS (3 + 0) 3 credits
Survey of the ESL market in materials; texts, supplementary texts, workbooks, tapes, and discs; software; video. Reviews; materials adaptation; publishers and manuscripts. Prerequisite: ENGL 636, 638 or C I 631.

711 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Bibliography and modern research techniques in language and literature, methods of literary analysis, preparation of documented investigation.

712 ADVANCED GRAMMAR FOR ESL TEACHERS (3 + 0) 3 credits
Principles of American English grammar, its internal, developmental, interference and transitional problems and idiosyncracies. Classroom strategies for effective presentation, error remediation, and practice. Prerequisite: ENGL 281, 410, 739.

713 PROBLEMS IN LANGUAGE (3 or 4 + 0) 3 or 4 credits
Typical problems in advanced study of language. Prerequisite: ENGL 411 or equivalent. Maximum of 8 credits. (Same as ANTH 713.)

714 PROBLEMS IN MODERN GRAMMATICAL STUDY (3 or 4 + 0) 3 or 4 credits
Examination of important current grammatical descriptions, especially of English. Prerequisite: ENGL 411 or equivalent. Maximum of 8 credits.

715 SEMINAR IN PHILOLOGY AND LINGUISTICS (3 or 4 + 0) 3 or 4 credits
Special problems in philology and linguistics. Prerequisite: ENGL 411 or equivalent. Maximum of 8 credits.

717 OLD ENGLISH (3 + 0) 3 credits
Introduction to Old English language and literature.

718 BEOWULF (3 + 0) 3 credits
Beowulf and the Germanic Heroic Age. Prerequisite: ENGL 717 or equivalent.

719 MIDDLE ENGLISH (3 + 0) 3 credits
Introduction to Middle English language and literature. Prerequisite: ENGL 451 or equivalent.

721 PROBLEMS IN THE HISTORY OF LITERARY CRITICISM (4 + 0) 4 credits
Important critical modes and approaches from Plato and Aristotle to the present.

722 PROBLEMS IN LITERARY THEORY (4 + 0) 4 credits
Problems in criticism and critical theory. Maximum of 8 credits with approval of the student's committee.

723 PROBLEMS IN THEMES AND IDEAS IN LITERATURE (3 or 4 + 0) 3 or 4 credits
Themes and ideas in literature and broad literary approaches like comparative literature and the history of ideas. Maximum of 8 credits.

725 PROBLEMS IN THE NOVEL (4 + 0) 4 credits
Intensive study of the novel with attention to its history and development. Maximum of 8 credits.

726 PROBLEMS IN LITERARY FORM (4 + 0) 4 credits
Generic or cross generic studies of literary structure. Maximum of 8 credits.

733 HISTORY AND PRINCIPLES OF RHETORIC (3 + 0) 3 credits
Development of theories of effective expression in language with attention to practical problems of writing and the teaching of writing. Advised for candidates planning to teach.

735 SEMINAR IN RHETORIC AND COMPOSITION (4 + 0) 4 credits
Rhetorical problems. Maximum of 8 credits.

737 COLLEGE TEACHING IN LANGUAGE AND LITERATURE (1 to 3 + 0) 1 to 3 credits *S/U only*
Theory and practice in the teaching of English in college, particularly the first-year course. Required of students planning a degree with a teaching emphasis. Maximum of 4 credits.

738 TEACHING ENGLISH AS A FOREIGN LANGUAGE (1 to 3 + 0) 1 to 3 credits
Theory and practice in the teaching of English to speakers of other languages and nonstandard dialects. Students work under supervision of the director of the ESL program. Prerequisite: ENGL 411 or equivalent. Maximum of 4 credits.

739 APPLIED LINGUISTICS FOR LANGUAGE TEACHERS (3 + 0) 3 credits
Principles of fluency, accuracy, and appropriateness in effective classroom presentation. Contrastive/error/avoidance analyses in error remediation of dynamic speech, syntax, semantics, pragmatics. Prerequisite: ENGL 281, 410.

740 ISSUES IN ESL/EFL (3 + 0) 3 credits
Linguistic, cultural, and political issues important to ESL/EFL professionals. Topics such as world Englishes, English for special purposes, the politics of language, materials acquisition and development overseas.

741 PROBLEMS IN EARLY AMERICAN LITERATURE (4 + 0) 4 credits
Selected subjects in early American literature. Prerequisite: ENGL 441, 445 or 446 or equivalent. Maximum of 8 credits.

743 PROBLEMS IN LATER AMERICAN LITERATURE (4 + 0) 4 credits
Companion course to ENGL 741. Prerequisite: ENGL 441, 445 or 446 or equivalent. Maximum of 8 credits.

749 SPECIAL TOPICS IN LANGUAGE AND LINGUISTICS (1 to 3 + 0) 1 to 3 credits
Intensive study of specific topics related to language. Maximum of 6 credits.

750 SPECIAL TOPICS IN TESL (3 + 0) 3 credits
Intensive study of specific topics related to TESL/ESL, TEFL/EFL. Maximum of 6 credits.

751 WRITERS AND WORKS BEFORE 1800 (1 to 3 + 0) 1 to 3 credits
Intensive study of specific works by early writers. Maximum of 6 credits.

752 INDIVIDUAL WRITERS AND WORKS AFTER 1800 (1 to 3 + 0) 1 to 3 credits
Intensive study of specific works by later writers. Maximum of 6 credits.

753 PROBLEMS IN CHAUCER (4 + 0) 4 credits
Selected problems in Chaucer. Prerequisite: ENGL 451 or equivalent. Maximum of 8 credits.

758 PROBLEMS IN TEACHING WRITING 1 to 4 credits
Survey of theory and practice of teaching composition (a) in grades K through 13, (b) at particular grade levels. Maximum of 6 credits.

761 PROBLEMS IN THE EARLY RENAISSANCE (4 + 0) 4 credits
Intensive study of selected topics in nondramatic Renaissance literature prior to 1603. Prerequisite: ENGL 461 or equivalent. Maximum of 8 credits.

762 PROBLEMS IN 17TH CENTURY LITERATURE (4 + 0) 4 credits
Companion course to ENGL 761. Prerequisite: ENGL 463 or equivalent. Maximum of 8 credits.

764 PROBLEMS IN NON-SHAKESPEAREAN DRAMA (4 + 0) 4 credits
16th and 17th century drama exclusive of Shakespeare. Prerequisite: ENGL 461 or equivalent. Maximum of 8 credits.

765 PROBLEMS IN SHAKESPEARE (4 + 0) 4 credits
Intensive study in the works of Shakespeare. Prerequisite: ENGL 465 or equivalent. Maximum of 8 credits.

767 PROBLEMS IN MILTON (4 + 0) 4 credits
Intensive study in the works of Milton. Prerequisite: ENGL 464 or equivalent. Maximum of 8 credits.

771 PROBLEMS IN THE AGE OF REASON (4 + 0) 4 credits
Considers special figures or aspect of the period. Prerequisite: ENGL 471 or equivalent. Maximum of 8 credits.

775 PROBLEMS IN THE ROMANTIC MOVEMENT (4 + 0) 4 credits
Problems in the prose and verse of the late 18th and early 19th centuries in England. Prerequisite: ENGL 475 or equivalent. Maximum of 8 credits.

778 SEMINAR IN TEACHING WRITING (1 + 0 per credit) 1 to 6 credits
Methods of teaching writing in grades K through 14 presented in relation to theories of language growth. Prerequisite: approval of screening committee. Maximum of 6 credits. (Same as C I 778.)

781 PROBLEMS IN THE VICTORIAN AGE (4 + 0) 4 credits
English literature of the middle and late 19th century in England. Prerequisite: ENGL 481 or equivalent. Maximum of 8 credits.

783 PROBLEMS IN EARLY 20TH CENTURY BRITISH LITERATURE (4 + 0) 4 credits
British and Irish literature of the early 20th century. Maximum of 8 credits.

785 PROBLEMS IN CONTEMPORARY AMERICAN LITERATURE (4 + 0) 4 credits
Selected contemporary American writers or current literary movements. Maximum of 8 credits.

787 PROBLEMS IN CONTEMPORARY BRITISH LITERATURE (4 + 0) 4 credits
Contemporary literature with emphasis upon movements which center in Great Britain. Maximum of 8 credits.

788 PROBLEMS IN MODERN COMPARATIVE LITERATURE (4 + 0) 4 credits
Modern literature studied with emphasis upon international movements. Maximum of 8 credits.

789 ESL PRACTICUM (0 + 9) 3 credits
Developing lesson plans, teaching experience at different instructional levels, and critique. Prerequisite: ENGL 636, 638 or C I 631, ENGL 639.

790 SPECIAL TOPICS 1 to 3 credits
May be taken by M.A. students only under very special conditions to provide work which is not otherwise offered during a student's anticipated residence. Maximum of 3 credits with the approval of the student's committee.

791 SPECIAL TOPICS 1 to 3 credits
May be taken by Ph.D. students only under very special conditions to provide work which is not otherwise offered during a student's anticipated residence. Maximum of 6 credits with the approval of the student's committee.

795 COMPREHENSIVE EXAMINATION 0 credits *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

282 INTRODUCTION TO LANGUAGE AND LITERARY EXPRESSION (3 + 0) 3 credits
323 PRINCIPLES OF LITERARY ANALYSIS (2 + 0) 2 credits
333 FAR EASTERN LITERATURE (2 to 3 + 0) 3 credits
365 MODERN CONTINENTAL FICTION (3 + 0) 3 credits
412, 612 INTRODUCTION TO OLD NORSE (3 + 0) 3 credits
419, 619 MODERN ENGLISH (3 + 0) 3 credits
452, 652 CHAUCER (3 + 0) 3 credits

ENVIRONMENT (ENV)

Interdisciplinary Courses

101 MAN AND ENVIRONMENT (3 + 0) 3 credits
Interdisciplinary, introductory survey of the ecology of natural systems with emphasis on the relationship of man to the environment.

292 COMMUNITY ENVIRONMENTAL PROBLEMS (3 + 0) 3 credits
(See GEOG 292 for description.)

294 LIFE STYLES AND THE ENVIRONMENT (3 + 0) 3 credits
Evaluation of personal decisions and medes of behavior which have effects upon environmental problems such as the consumption of resources, pollution and population growth.

301 INDEPENDENT STUDY IN ENVIRONMENT 1 to 3 credits
Independent research and/or reading under supervision of an instructor. Maximum of 6 credits

401 ENVIRONMENTAL INTERNSHIP 1 to 5 credits *S/U only*
Work experience in governmental or private entity under supervision of faculty member. Periodic and final reports required. Maximum of 6 credits.

457, 657 ENVIRONMENTAL POLICY (3 + 0) 3 credits
(See P SC 457 for description.)

494, 694 SEMINAR ON LIFE STYLES AND THE ENVIRONMENT (2 + 0) 2 credits
Systematic analysis and reconsideration of alternative individual life style in the framework of society's impact on the environment.

ETHNIC STUDIES (E S)

307 TOPICS IN RACE AND RACISM (3 + 0) 3 credits
Definitions and classifications of race and racism. Topical analyses within sociological, historical, psychological, anthropological, biological, humanistic and economic contexts.

FAMILY AND COMMUNITY MEDICINE (FCM)

401, 601 NUTRITION APPLICATIONS (1 + 0) 1 credit
Identity, functions, metabolism, requirements, and food sources of basic nutrients and their role in health/disease.

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing family and community medicine.

461, 661 ELECTIVES RURAL HEALTH 2 to 8 credits *S/U only*
Elective experiences in family and community medicine including: (a) rural health, (b) family and community medicine, (c) hospice care, (d) introduction to occupational medicine, and (e) advanced public health and preventive medicine. Prerequisite: third- or fourth-year medical student. Maximum of 8 credits in any one subtopic. Maximum of 16 total credits for any combination of subtopics.

462, 662 NUTRITION 1 to 4 credits
Advanced clinical experiences in nutrition. Selected applied nutrition preceptorship experiences under faculty supervision. Special arrangement with instructor.

463, 663 PRECEPTORSHIP (0 + 8) 4 credits *S/U only*
Clinical experience for medical students between their first and second years. Observe and participate with preceptor in an office/practice setting.

468, 668 NUTRITION CLINIC ELECTIVE 1 to 3 credits
Individual counseling for personal nutrition problems. Learn experientially as patients in the clinic, co-therapists and students.

471, 671 ADVANCED CLINICAL EXPERIENCES (0 + 96) 2 to 32 credits
Selected practical experiences with patients, with faculty advisement and supervision.

477-478, 677-678 ADVANCED COMMUNITY MEDICINE (0 + 1) 1 credit each
Field questions exemplifying community health problems and delivery of health care.

481, 681 TEAM APPROACH TO HEALTH CARE II (1 + 6) 1 to 3 credits
Case study and field work methods are continued from SHR 335, with more time being allocated to direct experiences with individuals and families in the community through preceptorships.

490 INDEPENDENT STUDY 1 to 4 credits

491, 691 INDEPENDENT STUDY IN CLINICAL NUTRITION 1 to 4 credits
Special problem solving, research or supervised clinical preceptorship in applied clinical nutrition. Prerequisite: medical student standing, H EC 626 or equivalent. Maximum of 8 credits.

676 ISSUES IN HEALTH CARE (2 + 3) 3 credits *S/U only*
Survey of community health issues with a required practicum.

700 INDEPENDENT STUDY 1 to 3 credits

FOREIGN LANGUAGES AND LITERATURES (FLL)

150-151 ELEMENTARY LANGUAGE (4 + 0) 4 credits each
Introduction to the language through practice and analysis. Instruction in the following languages will be available as demand and resources permit: (a) Arabic, (b) Chinese, (c) Ancient Hebrew, (e) Portuguese.

292 GREAT BOOKS: THE GREEKS TO DANTE (3 + 0) 3 credits
(See ENGL 292 for description.)

293 GREAT BOOKS: THE RENAISSANCE TO THE PRESENT (3 + 0) 3 credits
(See ENGL 293 for description.)

295 INDEPENDENT LANGUAGE STUDY 1 or 2 credits
Open to qualified students in the following languages: (a) Arabic, (b) Basque, (c) Chinese, (d) Classical Greek, (e) Ancient Hebrew, (f) Japanese, (g) Latin, (j) French, (k) German, (m) Russian, (n) Spanish, (p) Portuguese, (q) Persian, (r) Italian. At least one conference per week with instructor concerned. Maximum of 4 credits in any one language.

301-302 IDEAS, VALUES AND CULTURES I and II (3 + 0) 3 credits each
Ideas, values and cultures as expressed in literature as they relate to man, society and the cosmos. Includes Western, non-Western and women's primary source material.

355 MODERN DRAMA (3 + 0) 3 credits
(See ENGL 355 for description.)

366 GREAT NOVELS IN TRANSLATION (3 + 0) 3 credits
Masterpieces of 19th and 20th century fiction by such authors as Balzac, Flaubert, Dostoevsky, Tolstoy, Proust, Kafka, Mann, Camus.

430, 630 STUDIES IN COMPARATIVE LITERATURE (3 + 0) 3 credits
(See ENGL 430 for description.)

455, 655 APPLIED ROMANCE LINGUISTICS (3 + 0) 3 credits
Introduction to basic linguistic concepts and contrastive linguistics. Projects applying the principles of contrastive linguistics to the teaching of language. Prerequisite: FR or SPAN 306.

458, 658 HISTORY OF THE ROMANCE LANGUAGES (3 + 0) 3 credits
Development of the Romance languages from Latin. Prerequisite: FR or SPAN 306.

488, 688 INTERNATIONAL FICTION OF THE 19TH AND 20TH CENTURIES (3 + 0) 3 credits
(See ENGL 488, 688 for description.)

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to qualified students in the following languages: (a) Arabic, (b) Basque, (c) Chinese, (d) Classical Greek, (e) Ancient Hebrew, (f) Japanese, (g) Latin, (h) Norwegian, (j) French, (k) German, (m) Russian, (n) Spanish, (p) Portuguese, (q) Persian, (r) Italian. At least one conference per week with instructor concerned. Maximum of 8 credits in any one language.

Prerequisite for following four courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

702 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Methods of literary analysis, research techniques, preparation of documented investigation and bibliography.

703 TEACHING FOREIGN LANGUAGES (3 + 0) 3 credits
History and theory of language teaching methodology; application of linguistic theory to classroom practice.

714 PROBLEMS IN ROMANCE PHILOLOGY AND LINGUISTICS (3 + 0) 3 credits
Seminar in typical problems of Romance philology and linguistics. Maximum of 6 credits.

758 PROBLEMS IN COMPARATIVE LITERATURE (3 + 0) 3 credits
Literature studied with emphasis on international movements.

793 INDEPENDENT STUDY 1 to 3 credits
For majors in the tutorial doctoral program in Basque studies. Maximum of 9 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*
For French, German and Spanish majors only.

799 DISSERTATION 1 to 24 credits
For majors in the tutorial doctoral program in Basque studies only.

Inactive Course

365 MODERN CONTINENTAL FICTION (3 + 0) 3 credits

Basque (BASQ)

101-102 ELEMENTARY BASQUE I AND II (4 + 0) 4 credits each
Introduction to the language through the development of written and conversational language skills and through structural analysis. Emphasis on Unified Basque but includes an introduction to the dialects.

203-204 SECOND YEAR BASQUE I AND II (3 + 0) 3 credits each
Structural review, conversation and writing. Includes further work with the unique structure of the Basque verb and system of suffixes. Prerequisite to BASQ 203 is BASQ 102 or equivalent. Prerequisite to BASQ 204 is BASQ 203 or equivalent. Completion of BASQ 204 satisfies the arts and science foreign language requirement.

405-406, 605-606 BASQUE CONVERSATION AND COMPOSITION (3 + 0) 3 credits each
Syntax and idiomatic usage in spoken and written Basque. Concentration on verb forms. Prerequisite to BASQ 405, 605 is 204; prerequisite to BASQ 406, 606 is 405, 605.

451, 651 INTRODUCTION TO BASQUE LITERATURE (3 + 0) 3 credits
Literature of the Basques in Basque, French, and Spanish. Readings in English translation. Course conducted in English.

455, 655 INTRODUCTION TO BASQUE LINGUISTICS (3 + 0) 3 credits
Structure of the Basque language, suggested relationships to other languages, historical development; dialectology; survey of research problems. Prerequisite: ANTH 305 or ENGL 281. (Same as ANTH 455.)

466, 666 OLD WORLD BASQUE CULTURE (3 + 0) 3 credits
Intensive study of the Basque people of southern Europe both in historical perspective and contemporary society; the historical events and social structural features which have stimulated or facilitated extensive Basque emigration to other parts of the world including the American West. Prerequisite: ANTH 101. (Same as ANTH 466.)

French (FR)

101-102 ELEMENTARY FRENCH I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to French culture.

203-204 SECOND YEAR FRENCH (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to FR 203 is FR 102 or equivalent. Prerequisite to FR 204 is FR 203 or equivalent. Completion of FR 204 satisfies the arts and science foreign language requirement.

205 READING FRENCH I (2 + 0) 2 credits
Development of reading skills, including vocabulary building, verb recognition, and sentence structure. Reading of selected texts for comprehension. Prerequisite: FR 102. Completion of this course and FR 209 satisfies the arts and science foreign language requirement.

209 READING FRENCH II (2 + 0) 2 credits
Continuation of development of reading skills with emphasis on comprehension. Practical readings in the humanities, social science and natural sciences with individualized assignments when appropriate. Prerequisite: FR 205. Completion of this course satisfies the arts and science foreign language requirement.

221 FRANCE AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of France. Taught in English; no knowledge of French required. French language readings required of French majors. Counts for humanities credits for students using the catalog prior to 1989-90.

223 FRENCH LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including such authors as Montaigne, Molière, Voltaire, Hugo, Gide, Ionesco.

301 FRENCH PHONETICS (3 + 0) 3 credits
Introduction to phonetic theory and practice in pronunciation; instruction and practice in levels of usage. Not open to native speakers using the standard form of the language. Pretequisite: FR 203 or equivalent.

305-306 FRENCH COMPOSITION (3 + 0) 3 credits each
Development of directed and creative writing skills in French. Prerequisite to FR 305 is 204; prerequisite to FR 306 is 305. Not applicable to an advanced degree in French.

309 FRENCH CONVERSATION (0 + 2) 1 credit
Intensive practice in speaking. Prerequisite: FR 204. Maximum of 4 credits.

313 INTRODUCTION TO THE HISTORY OF FRENCH LITERATURE I
(3 + 0) 3 credits
Comprehensive view of French literature and its major genres from its beginnings through the seventeenth century, with emphasis on historical background and textual analysis. Prerequisite: FR 305 or equivalent. Not applicable to an advanced degree in French.

314 INTRODUCTION TO THE HISTORY OF FRENCH LITERATURE II
(3 + 0) 3 credits
Comprehensive view of French literature and its major genres from the 18th century to the present with emphasis on historical background as well as textual analysis. Prerequisite: FR 305 and 313 or equivalent. Not applicable to an advanced degree in French.

Prerequisite for all French 400-level literature courses: FR 305-306 and 6 credits from FR 221, 313, 314.

407, 607 ADVANCED FRENCH GRAMMAR AND COMPOSITION
(3 + 0) 3 credits
Prerequisite: FR 306.

441, 641 SEMINAR IN LANGUAGE AND LITERATURE
(2 or 3 + 0) 2 or 3 credits
Selected themes, ideas, authors, works or periods in French language or literature. Topics vary from semester to semester. Maximum of 6 credits.

463, 663 MEDIEVAL FRENCH LITERATURE (3 + 0) 3 credits
Literature and thought of the Middle Ages. Maximum 6 credits each.

465, 665 THE 16TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Literature and thought of the Renaissance. Maximum 6 credits each.

469, 669 THE 17TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Trends of 17th century literature and thought.

473, 673 THE 18TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Literature and thought of the Age of Enlightenment. Maximum 6 credits each.

477, 677 THE 19TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Main literary and intellectual trends from Romanticism to Naturalism.

491, 691 THE 20TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Main currents of 20th century prose, poetry and theatre.

Prerequisite for all French 700-level courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

731 STUDIES IN THE FRENCH RENAISSANCE AND BAROQUE
(3 + 0) 3 credits
Development of the Renaissance and Baroque periods with particular reference to Rabelais, the Pléiade and Montaigne.

739 STUDIES IN 17TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Seminar in literary problems of the century, considered by genre or by author. Maximum of 9 credits.

743 STUDIES IN 18TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Special consideration of various authors or aspects of the period. Maximum of 9 credits.

747 STUDIES IN 19TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Seminar in selected literary schools and movements of the century, selected authors, or genres. Maximum of 9 credits.

761 STUDIES IN 20TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Problems of modern and contemporary literature; selected authors, movements, schools; influences, genres. Maximum of 9 credits.

792 SPECIAL PROBLEMS 2 or 3 credits
Seminar in selected problems not the main emphasis in other courses, such as existentialism, culture and civilization, literary criticism, etc. Maximum of 9 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

797 THESIS 1 to 6 credits.

Inactive Course

715 OLD FRENCH (2 + 0) 2 credits
725 EXPLICATION DE TEXTES (3 + 0) 3 credits

German (GER)

101-102 ELEMENTARY GERMAN I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to German culture.

203-204 SECOND-YEAR GERMAN (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to Ger. 203 is GER 102 or equivalent. Prerequisite to GER 204 is GER 203 or equivalent. Completion of GER 204 satisfies the arts and science foreign language requirement.

205 READING GERMAN I (2 + 0) 2 credits
Development of reading skills, including vocabulary building, verb recognition and sentence structure. Reading of selected texts for comprehension. Prerequisite: GER 102. Completion of this course and 209 satisfies the arts and science foreign language requirement.

209 READING GERMAN II (2 + 0) 2 credits
Continuation of development of reading skills with emphasis on comprehension. Practical readings in the humanities, social sciences and natural sciences with individualized assignments when appropriate. Prerequisite: GER 205. Completion of this course satisfies the arts and science foreign language requirement.

221 GERMAN SPEAKING EUROPE AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of Germany, Austria and Switzerland. Taught in English; no knowledge of German required. German language readings required of German majors. Counts for humanities credits for students using the catalog prior to 1989-90.

223 GERMAN LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including authors such as Goethe, Büchner, Hermann Hesse, Thomas Mann, Franz Kafka, Bert Brecht.

301 CORRECTIVE PHONETICS (2 + 0) 2 credits
Introduction to phonetic theory and extensive practice in pronunciation and intonation. Not open to native speakers using the standard form of the language. Prerequisite: GER 203 or equivalent.

305-306 GERMAN COMPOSITION (3 + 0) 3 credits each
Prerequisite to GER 305 is 204; prerequisite to GER 306 is 305. Not applicable to an advanced degree in German.

309 GERMAN CONVERSATION (0 + 2) 1 credit
Prerequisite: GER 204. Maximum of 4 credits.

311 INTRODUCTION TO GERMAN LITERATURE (3 + 0) 3 credits
Readings in German literature in its major forms with emphasis on the modern period. Discussions. Prerequisite: GER 204. Not applicable to an advanced degree in German.

350 SHORTER FORMS IN GERMAN LITERATURE (3 + 0) 3 credits
Practice in literary analysis. Examples from lyric poetry, the short story, the novella, and the drama. Prerequisite: GER 204 or equivalent. Not applicable to an advanced degree in German.

Prerequisite for all German 400-level literature courses: GER 305-306 and 3 credits from GER 221 or 311.

407, 607 ADVANCED GERMAN GRAMMAR (3 + 0) 3 credits
Prerequisite: GER 306 or equivalent.

408, 608 ADVANCED GERMAN COMPOSITION (3 + 0) 3 credits
Prerequisite: GER 407 or equivalent.

435-436, 635-636 THE AGE OF GOETHE (3 + 0) 3 credits each
Comprehensive view of German literature from 1750 to 1830.

441, 641 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3 + 0) 2 or 3 credits
Selected themes, ideas, authors, works or periods in German language or literature. Topics vary from semester to semester. Maximum of 6 credits.

455, 655 APPLIED GERMAN LINGUISTICS (3 + 0) 3 credits
Introduction to linguistic concepts and contrastive linguistics. Projects by students apply the principles of contrastive linguistics to the teaching of German. Prerequisite: GER 306.

458, 658 INTRODUCTION TO THE HISTORY OF THE GERMAN LANGUAGE (3 + 0) 3 credits
Development of the German language. Basic linguistic concepts and terminology. Prerequisite: GER 306.

459-460, 659-660 HISTORY OF GERMAN LITERATURE (3 + 0) 3 credits each
Comprehensive view of German literature from its beginning to the present day.

467, 667 LESSING (3 + 0) 3 credits
Chief dramatic and critical works of Lessing.

468, 668 SCHILLER (3 + 0) 3 credits
Selections from Schiller's chief poetic, dramatic and aesthetic works.

469, 669 GOETHE (3 + 0) 3 credits
Selected works of Goethe exclusive of Faust.

470, 670 GOETHE'S "FAUST" (3 + 0) 3 credits
Parts I and II.

471, 671 GERMAN LYRIC POETRY (3 + 0) 3 credits
German lyric poetry from the 17th century to the present.

472, 672 19TH CENTURY GERMAN LITERATURE (3 + 0) 3 credits
German literature from 1830 to 1880.

477, 677 THE GERMAN "NOVELLE" (3 + 0) 3 credits each
Development of the "Novelle" from the Romantic period to modern times. Reading and discussion.

491, 691 20TH CENTURY GERMAN LITERATURE (3 + 0) 3 credits
Main currents of German prose, poetry and drama since 1890.

Prerequisite for all German 700-level courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

709 CRITICAL AND CREATIVE WRITING IN GERMAN (2 + 0) 2 credits
Practice of the use of German in criticism and creative writing. Maximum of 6 credits.

721 THE AGE OF ENLIGHTENMENT IN GERMANY (3 + 0) 3 credits
German literature of the Enlightenment. Maximum of 6 credits.

732 GOETHE AND HIS CONTEMPORARIES (3 + 0) 3 credits
Literature of the German *Sturm und Drang, Klassic* and *Romantik.* Maximum of 6 credits.

741 GERMAN REALISM (3 + 0) 3 credits
Literature of Poetic Realism and Realism. Maximum of 6 credits.

761 THE MODERN AGE IN GERMANY (3 + 0) 3 credits
German literature from Naturalism to the present. Maximum of 6 credits.

793 INDEPENDENT STUDY 1 to 3 credits each
Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

713 PROBLEMS IN GERMANIC PHILOLOGY AND LINGUISTICS (3 + 0) 3 credits
714 GOTHIC (3 + 0) 3 credits
715-716 MIDDLE HIGH GERMAN LANGUAGE AND LITERATURE (3 + 0) 3 credits each
731 GERMAN RENAISSANCE, REFORMATION AND BAROQUE (3 + 0) 3 credits

Greek (GK)

101-102 ELEMENTARY CLASSICAL GREEK I and II (4 + 0) 4 credits each
Introduction to the language stressing mastery of grammar and the reading of simple texts from classical authors.

205 READING CLASSICAL GREEK I (2 + 0) 2 credits
Selections from such prose writers as Plato, Xenephon and the New Testament. Prerequisite: GK 102. Completion of this course and GK 209 satisfies the arts and science foreign language requirement.

209 READING CLASSICAL GREEK II (2 + 0) 2 credits
Selections from such prose and verse writers as Plato, Aristotle, Euripides and Homer. Prerequisite: GK 205. Completion of this course satisfies the arts and science foreign language requirement.

NOTE: The arts and science foreign language requirement can also be satisfied by completing two semesters of Classical Greek and two semesters of Latin.

Italian (ITAL)

101-102 ELEMENTARY ITALIAN I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to Italian culture.

203-204 SECOND YEAR ITALIAN (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to ITAL 203 is ITAL 102 or equivalent; prerequisite to ITAL 204 is 203 or equivalent. Completion of ITAL 204 satisfies the arts and science foreign language requirement.

221 ITALY AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of Italy. Taught in English; no knowledge of Italian required. Counts for humanities credits for students using the catalog prior to 1989-90.

223 ITALIAN LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including such authors as Dante, Petrach, Boccaccio, Machiavelli, Pirandello.

309 ITALIAN CONVERSATION (0 + 0) 1 credit
Prerequisite: ITAL 204. Maximum of 4 credits.

462, 662 DANTE'S DIVINE COMEDY (3 + 0) 3 credits
Selected readings in the Divine Comedy with some reference to Dante's minor works. Taught in English.

Inactive Courses

305-306 INTERMEDIATE ITALIAN COMPOSITION AND CONVERSATION (3 + 0) 3 credits each
351-352 THE ITALIAN NOVEL (2 + 0) 2 credits each
381-382 ITALIAN LITERATURE OF THE 18TH AND 19TH CENTURIES (2 + 0) 2 credits each

Japanese (JAPN)

101-102 ELEMENTARY JAPANESE I and II (4 + 0) 4 credits each
Introduction to the language through structural analysis and the writing system. Includes some conversation and an introduction to Japanese culture. Prerequisite to JAPN 102 is JAPN 101 or equivalent.

203-204 SECOND YEAR JAPANESE (3 + 0) 3 credits each
Continuation of structural analysis and spoken and written Japanese. Prerequisite: to JAPN 204 is JAPN 203 or equivalent. Completion of JAPN 204 satisfies the arts and science foreign language requirement.

221 JAPAN AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of Japan. Taught in English; no knowledge of Japanese required. Counts for humanities credits for students using catalog prior to 1989-90.

Latin (LAT)

101-102 ELEMENTARY LATIN I and II (4 + 0) 4 credits each
Introduction to the language stressing mastery of grammar and the reading of simple texts from classical authors.

205 READING LATIN I (2 + 0) 2 credits
Selections from such Latin prose writers as Caesar, Cicero, Livy, Pliny. Prerequisite: LAT 102. Completion of this course and LAT 209 satisfies the arts and science foreign language requirement.

209 READING LATIN II (2 + 0) 2 credits
Selections from such Latin poets as Ovid, Virgil, Catullus, Horace. Prerequisite: LAT 205. Completion of this course satisfies the arts and science foreign language requirement.

NOTE: The arts and science foreign language requirement can also be satisfied by completing two semesters of Latin and two semesters of Classical Greek.

Russian (RUSS)

101-102 ELEMENTARY RUSSIAN I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to Russian culture.

203-204 SECOND YEAR RUSSIAN (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to RUSS 203 is RUSS 102 or equivalent. Prerequisite to RUSS 204 is RUSS 203. Completion of RUSS 204 satisfies the arts and science foreign language requirement.

Inactive Courses

305-306 INTERMEDIATE RUSSIAN COMPOSITION AND CONVERSATION (3 + 0) 3 credits each
357-358 SURVEY OF RUSSIAN LITERATURE (3 + 0) 3 credits each

Spanish (SPAN)

101-102 ELEMENTARY SPANISH I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to Spanish and Latin American culture.

203-204 SECOND YEAR SPANISH (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to SPAN 203 is SPAN 102 or equivalent. Prerequisite to SPAN 204 is SPAN 203 or equivalent. Completion of SPAN 204 satisfies the arts and science foreign language requirement.

205 READING SPANISH I (2 + 0) 2 credits
Development of reading skills, including vocabulary building, verb recognition, and sentence structure. Reading of selected texts for comprehension. Prerequisite: SPAN 102. Completion of this course and 209 satisfies the arts and science foreign language requirement.

209 READING SPANISH II (2 + 0) 2 credits
Continuation of development of reading skills with emphasis on comprehension. Practical readings in the humanities, social sciences and natural sciences, with individualized assignments when appropriate. Prerequisite: SPAN 205. Completion of this course satisfies the arts and science foreign language requirement.

221 IBERIA AND ITS CULTURES (3 + 0) 3 credits
Introduction to the nationalities and cultures of Iberia; emphasis on the Spanish state, through geographical, historical, socio-economic and artistic issues. Taught in English. Readings in Spanish required of Spanish majors. Counts for humanities credits for students using catalog prior to 1989-90.

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. Counts for humanities credits for students using catalog prior to 1989-90.

223 SPANISH LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including such authors as Cervantes, Unamuno, Lorca, Borges, García Márquez.

301 CORRECTIVE PHONETICS (2 + 0) 2 credits
Extensive practice in pronunciation with the aim of eliminating foreign accent; instruction and practice in levels of usage. Not open to native speakers using the standard form of the language. Prerequisite: SPAN 203 or equivalent.

305-306 SPANISH COMPOSITION (3 + 0) 3 credits each
Syntax and idiomatic usage. Prerequisite to SPAN 305 is 204; prerequisite to SPAN 306 is SPAN 305. Not applicable to an advanced degree in Spanish.

309 SPANISH CONVERSATION (2 + 0) 2 credits
Designed to help intermediate and advanced language students achieve oral proficiency through specific communicative situations. Not intended for native speakers. Prerequisite: SPAN 204. Maximum of 4 credits.

351-352 MASTERWORKS OF HISPANIC LITERATURE (3 + 0) 3 credits each
Study of selected works of Spanish and Spanish-American literature. Prerequisite: SPAN 204.

Prerequisite for all Spanish 400-level courses: SPAN 305-306, 351-352.

410, 610 SPANISH STYLISTICS (3 + 0) 3 credirs
Designed to help the mature language student achieve a personal style in written and spoken Spanish.

440 SEMINAR (3 + 0) 3 credits
Creative and critical writing and speaking on current issues in Hispanic language, literature and culture.

441, 641 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3 + 0) 2 or 3 credits
Selected themes, ideas, authors, works, or periods in Hispanic languages or literatures. Topics vary from semester to semester. Maximum of 6 credits.

462, 662 MEDIEVAL AND EARLY RENAISSANCE SPANISH LITERATURE (3 + 0) 3 credits
Includes the period of the Catholic kings.

464, 664 SPANISH GOLDEN AGE PROSE (3 + 0) 3 credits
Prose forms of the 16th and 17th centuries with emphasis on Cervantes.

466, 666 SPANISH GOLDEN AGE POETRY (3 + 0) 3 credits
Poetry of the 16th and 17th centuries, from Garcilaso to Góngora.

469, 669 SPANISH GOLDEN AGE DRAMA (3 + 0) 3 credits each
Theater of the 16th and 17th centuries from Torres Naharro to Calderón de la Barca.

476, 676 THE 18TH CENTURY IN SPAIN (3 + 0) 3 credits
Neoclassical and traditional writers in the 18th century.

477, 677 19TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Main currents in either the prose, drama, or poetry of the 19th century in Spain. May be repeated to a maximum of 6 credits if topics are alternated.

484, 684 SPANISH-AMERICAN DRAMA (3 + 0) 3 credits
History and development of the theatre in Spanish America.

485, 685 SPANISH-AMERICAN POETRY (3 + 0) 3 credits
Spanish-American poetry from the discovery to the present day.

486, 686 SPANISH-AMERICAN NOVEL (3 + 0) 3 credits
The novel in Spanish America from colonial times to the present.

487, 687 SPANISH-AMERICAN SHORT STORY AND ESSAY (3 + 0) 3 credits
The short story and essay in Spanish America from the conquest to the present day.

491, 691 20TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Main currents in either the prose, drama or poetry of the 20th century in Spain. Maximum of 6 credits if topics are alternated.

493, 693 THE SHORT STORY IN SPANISH LITERATURE (3 + 0) 3 credits
The short story from early times to the present day.

Prerequisite for all Spanish 700-level courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

721 MEDIEVAL AND EARLY RENAISSANCE SPANISH LITERATURE (3 + 0) 3 credits
Seminar on selected genres and authors of the Spanish Middle Ages and the period of the Catholic kings. Maximum of 6 credits.

733 STUDIES IN SPANISH LITERATURE OF THE GOLDEN AGE (3 + 0) 3 credits
Special consideration of selected authors or aspects of the period. Maximum of 9 credits.

735 CERVANTES (3 + 0) 3 credits
Seminar on the works of Cervantes.

743 STUDIES IN SPANISH-AMERICAN POETRY (3 + 0) 3 credits
Critical study of poetry in Spanish America with emphasis on the *modernista* movement.

744 STUDIES IN THE SPANISH-AMERICAN NOVEL (3 + 0) 3 credits
Development of the novel in Spanish America. Maximum of 6 credits.

745 STUDIES IN 18TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Seminar in selected literary schools and movements. Maximum of 6 credits if topic is alternated.

747 STUDIES IN 19TH CENTURY SPANISH LITERATURE
(3 + 0) 3 credits
Seminar on selected movements, authors or genres in Spanish literature of the 19th century. Maximum of 6 credits.

761 STUDIES IN SPANISH LITERATURE OF THE 20TH CENTURY
(3 + 0) 3 credits
Problems of modern and contemporary literature; selected authors, movements; influences, genres. Maximum of 9 credits.

792a SPECIAL PROBLEMS IN SPANISH LITERATURE (3 + 0) 3 credits
Special topics in literary movements, authors, genres, literary criticism, etc. Maximum of 9 credits.

792b SPECIAL PROBLEMS IN SPANISH-AMERICAN LITERATURE
(3 + 0) 3 credits
Seminar in selected authors, genres, movements, literary criticism, etc. Maximum of 9 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Course

715 OLD SPANISH (3 + 0) 3 credits

GEOGRAPHY (GEOG)

103 GEOGRAPHY OF MAN'S ENVIRONMENT (3 + 0 or 3) 3 or 4 credits
Physical elements of the earth, its natural features and their significance to man. Earth form and motion, landforms, climate, vegetation and soils. May be taken with or without laboratory.

106 INTRODUCTION TO CULTURAL GEOGRAPHY (3 + 0) 3 credits
Systematic consideration of the spatial aspects of human culture. Major theses: spatial history and morphology, society-land relations and economic development and resource utilization.

200 REGIONAL GEOGRAPHY OF THE DEVELOPED WORLD
(3 + 0) 3 credits
Synthesis of the geographic factors (human, economic, environmental, political) which give distinctive character to specific areas of the developed world. Emphasis on international awareness.

202 REGIONAL GEOGRAPHY OF THE UNDERDEVELOPED WORLD
(3 + 0) 3 credits
Synthesis of the geographic factors (human, economic, environmental, political) which give distinctive character to specific areas of the underdeveloped world. Emphasis on international awareness.

211 MAPS AND THEIR INTERPRETATION (1 + 3) 2 credits *S/U only*
Introduction to maps and their use. Laboratory exercises in the interpretation of maps including topographic types. Experience in the field emphasized.

212 CARTOGRAPHY (2 + 6) 4 credits
Map making: includes map projections, map lettering, map reproduction and graphic presentation of geographic data. Prerequisite: one semester of college mathematics.

292 COMMUNITY ENVIRONMENTAL PROBLEMS (3 + 0) 3 credits
Local environmental problems involving their causes, effects and possible solutions. Examples also drawn from nearby regions and states. Local field study. Prerequisite: ENV 101 or GEOG 103 or a course in the natural sciences. (Same as ENV 292.)

300 ECONOMIC GEOGRAPHY (3 + 0) 3 credits
Emphasizes worldwide patterns of economic activity. World population, food and development problems; natural and economic factors related to economic activity. Study of selected agricultural and industrial commodities.

310 SEMINAR IN CULTURAL GEOGRAPHY (3 + 0) 3 credits
In-depth study of one or more aspects of cultural geography. May be elected more than once to pursue different studies. Prerequisite: introductory cultural or economic geography course. Maximum of 9 credits.

314 FIELD METHODS (1 + 6) 3 credits
Introduction to field techniques used for geographic analysis. Accent on practical experience culminating in individual maps and reports. Prerequisite: geography major or minor.

319 GEOGRAPHY OF WORLD AFFAIRS (3 + 0) 3 credits
Workshop to develop the technique of interpreting current world events in the geographic framework in which such events occur. Prerequisite: introductory geography course.

412, 612 COMPUTER MAPPING (3 + 0) 3 credits
Computer assisted cartography in theory and practice. Cartographic communications, data acquisition and design for computer generated mapping. Prerequisite: course in cartography, computer science or statistics.

416, 616 SPATIAL ANALYSIS IN GEOGRAPHY (3 + 0) 3 credits
Statistical and mathematical techniques applied to spatial problems, especially mappable data. Description, inference, hypothesis testing and statistical mapping. Prerequisite: college algebra or higher.

418, 618 GEOGRAPHIC THOUGHT (2 + 0) 4 credits
History of geographic thought; place of geography among the fields of knowledge; geographic methods; current trends in the field. Prerequisite: major or minor in geography.

421, 621 CLIMATOLOGY (3 + 0) 3 credits
Physical characteristics of the atmosphere. World climatic classification. Local atmospheric field study. Prerequisite: GEOG 103 or ENV 101 or a course in physics or meteorology.

422, 622 APPLIED CLIMATOLOGY (3 + 3) 4 credits
Energy balance, microclimates, hydrologic cycle and climatic variability; how they affect and are modified by people and their activities. Prerequisite: GEOG 103 or 421.

431, 631 LANDFORMS (3 + 0) 3 credits
Origin, description and classification of landforms. Distribution of landforms and their significance to environmental and resource problems in the U.S. Prerequisite: GEOG 103 or GEOL 101.

434, 634 BIOGEOGRAPHY (3 + 0) 3 credits
Brief treatment of plant and animal evolution. Prehistoric, historic and present-day world-wide distribution of plant formations and associated animal life. Examples of human impact on biotic life such as domestications, transfers and extinctions. (Same as BIOL 434, 634.)

435, 635 CONSERVATION OF NATURAL RESOURCES (3 + 0) 3 credits
Basic information regarding current and future problems and methods of conserving this country's renewable and nonrenewable resources. Prerequisite: one of the following: (1) junior (or higher) standing; or (2) at least 3 credits of work in geography or geology or a biological science. (Same as RWF 435, 635.)

440, 640 MOUNTAIN GEOGRAPHY (3 + 0) 3 credits
Geographic investigation of various mountain regions. Field study in the Sierra Nevada and basin-range mountains emphasizing man's impact on the mountain environment.

442, 642 HISTORICAL GEOGRAPHY (3 + 0) 3 credits
Man's natural environment and his imprint upon it at various times in the past. Old World emphasis, especially Middle East. Attention to development and spread of peoples and cultures and impact of technological changes. Prerequisite: introductory geography course.

446, 646 POLITICAL GEOGRAPHY (3 + 0) 3 credits
Spatial analysis of political systems. Territorial organization trends in local government and the sovereign state. Changing geopolitical patterns of power. Prerequisite: introductory geography courses.

452, 652 URBAN GEOGRAPHY (3 + 0) 3 credits
Origin and historical development of cities; world survey of cities today; city site, situation and functions with emphasis on American examples. Field trip. Prerequisite: introductory geography course or work in related field such as engineering, history, economics, political science or sociology.

456, 656 LAND USE PLANNING (1 to 3 + 0) 1 to 3 credits
Establishment of goals, policy development, and implementation of plans for land use in various geographic areas. Considers resource scarcity and environmental deterioration problems.

470, 670 GEOGRAPHIC EXPLORATIONS 1 to 3 credits *S/U only*
Intensive field study at various locations. Physical geography, settlement patterns, cultural landscapes and environmental issues. Maximum of 8 credits.

471, 671 ANGLO-AMERICA (3 + 0) 3 credits
Physical and cultural geographic patterns in the U.S. and Canada, using both the systematic and regional approach. Historical origins considered. Prerequisite: introductory geography course.

472, 672 GEOGRAPHY OF ARID LANDS (3 + 0) 3 credits
Climate, geomorphology, hydrology, ecology, and desertification of the world's arid and semi-arid areas. Field trips may be required. Prerequisite: 6 credits in the natural sciences.

473, 673 NEVADA: PATTERNS ON THE LAND (3 + 0) 3 credits
Physical, historical and economic aspects of the western Great Basin and nearby areas such as the Sierra Nevada and the southern Columbia Plateau. Field trip.

476, 676 LATIN AMERICA (3 + 0) 3 credits
Regional survey of physical, economic, cultural and political aspects of Latin America. Prerequisite: introductory geography course.

482, 682 EUROPE (3 + 0) 3 credits
Consideration of the physical, cultural and historical geography of Eutope and its regions. Pterequisite: introductory geography course.

485, 685 SOVIET UNION (3 + 0) 3 credits
Regional analysis of the environment, resources, peoples, and socialized economic development of the world's largest state. Prerequisite: introductory geography course.

487, 687 MIDDLE EAST (3 + 0) 3 credits
Regional geography of area with limits in terms of Arab and Islamic influences or related cultural and historical circumstances. Oriented around strategic core of territory as crossroads of three continents. Prerequisite: introductory geography course.

488, 688 THE PACIFIC BASIN (3 + 0) 3 credits
Physical geography, exploration and colonization, peoples and their cultures within the Pacific Ocean region, including Australia, New Zealand, the islands and bordering lands. Prerequisite: introductory geography course.

489, 689 EAST ASIA (3 + 0) 3 credits
Regional and national analysis of the physical, political and cultural geography of China, Japan, and Korea. Comparison of varied development experiences.

491, 691 SPECIAL TOPICS 1 to 3 credits
Independent study of selected geographic problems, including library research, field work and reports. Maximum of 8 credits.

495, 695 INTERNSHIP IN GEOGRAPHY 1 to 6 credits *S/U only*
Professional work experience with a government agency or private company. Maximum of 6 credits. Prerequisite: geography major or minor.

701 ADVANCED GEOGRAPHY 1 to 5 credits each
(a) Geographic thought, (b) historical, (c) cultural, (d) economic, (e) urban, (f) regional, (g) field methods, (h) cartography, (j) educational methods, (k) environmental perception, (m) statistical methods, (n) conservation problems, (p) physical, (r) climatology, (s) biogeography, (t) soils. Consists of either lectures, conferences, supervised reading, laboratory work, or field work. May be repeated more than once to pursue different studies.

720 SEMINAR IN ADVANCED CLIMATOLOGY (3 + 0) 3 credits
Topics in physical, regional, or applied climatology, world climates, microclimates, climatic change, statistical techniques and problems pertaining to people. Prerequisite: GEOG 421 or 422.

752 THEMES IN CULTURAL GEOGRAPHY (3 + 0) 3 credits
Uses the topical approach in the study of the roles played by such factors as population, race, social traits, economy, politics in shaping the diverse cultural regions of the earth.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
For majors in the land use planning policy master's program only.

Inactive Courses

370 HISTORY OF MAPPING (2 + 0) 2 credits
448, 648 ENVIRONMENTAL PERCEPTION (3 + 0) 3 credits
478, 678 AFRICA (3 + 0) 3 credits
486, 686 ASIA (3 + 0) 3 credits

GEOLOGICAL ENGINEERING (G E)

106 INTRODUCTION TO GEOLOGICAL ENGINEERING (1 + 0) 1 credit
Historical background to include seismic hazards, landslides, tunnelling, groundwater, exploration and mining geology, remote sensing, geophysics. Field trip required.

385 GEOLOGICAL ENGINEERING DATA ANALYSIS (3 + 0) 3 credits
Introduction to and application of statistics, probability and economic theory to analysis of geological data for the design of engineered structures interfacing with the earth. Prerequisite: MATH 215, 216 or equivalent.

478, 678 COMPUTER APPLICATIONS IN GEOLOGICAL ENGINEERING (3 + 0) 3 credits
Application of FORTRAN and BASIC for solution of problems pertient to geological engineering, including ore reserve calculation, slope design, and data management. Prerequisite: MINE 213.

479, 679 EARTHQUAKE ENGINEERING (3 + 0) 3 credits
Historic earthquakes, faulting and seismicity; spectra of earthquake vibrations; effects on soil and damage to manmade structures; seismic hazard studies; nuclear power plant siting; features of earthquake-resistant structures. Prerequisite: upper-division standing in geology, geological engineering, or civil engineering. (Same as C E 479.)

480, 680 ENVIRONMENTAL GEOLOGY (2 + 3) 3 credits
Relationship between geological materials, processes and history and man's safety, health and quality of environment. Includes lectures, discussions and field trips dealing with geological hazards in urban development. Pterequisite: upper-division standing in geology, geophysics, or engineeting.

483, 683 GEOLOGICAL ENGINEERING SLOPE STABILITY (3 + 0 or 3) 3 or 4 credits
Application of geological and engineering factors in the design and stability of natural and man-made rock and soil slopes. Corequisite: C E 372, GEOL 332.

484, 684, GROUNDWATER HYDROLOGY (3 + 0) 3 credits
Hydrologic, geologic and other factors controlling groundwater flow, occurrence, development, chemistry and contamination. Elementary groundwater flow theory. Interactions between surface-subsurface hydrologic systems. Prerequisite: GEOL 101, PHYS 152, CHEM 102, MATH 216.

485, 685 GEOLOGICAL ENGINEERING SUPPORT AND STABILIZATION TECHNIQUES (3 + 3) 4 credits
Design of supports for surface and underground excavations. Ground imptovement and instrumentation. In situ measurements in rock and soil. Prerequisite: G E 483, C E 492.

487, 687 GEOLOGICAL ENGINEERING DESIGN (2 + 6) 4 credits
Techniques and design of earth and rock structures, exploration programs, groundwater and mine feasibility projects. Prerequisite: G E 385, 483; GEOL 451.

GEOLOGY (GEOL)

101 OUR DYNAMIC PLANET EARTH (3 + 1) 3 credits
Includes plate tectonics, oceans, atmosphere, Ice Ages, minerals, rocks, mass extinctions, rivers, earthquakes and volcanoes. Two field trips required. Prerequisite: MATH 105 or equivalent.

102 HISTORY OF THE EARTH (3 + 3) 4 credits
Origin and history of the earth with a description of the life of the successive geologic periods. Laboratory exercises in the interpretation of geologic history from maps and fossil study. Prerequisite: GEOL 101.

103 PHYSICAL GEOLOGY LABORATORY (0 + 3) 1 credit
Exercises on plate tectonics, minerals, rocks, maps, aerial photos, ground water, rivers, earthquakes and planets. Prerequisite or corequisite: GEOL 101.

105 INTRODUCTION TO GEOLOGY (1 + 0) 1 credit
Brief study of physical and historical geology, with emphasis on the structure of the earth, origin of past and present landscapes, and evolution of life as told in the fossil record.

160 THE PARADE OF LIFE (3 + 0) 3 credits
Survey of the history and classification of fossil plants and animals. Methods of interpretation of the fossil record. Evolution of form and structure and the sequence of fossils in rocks. Occasional Saturday field trips.

211 MINERALOGY (2 + 3) 3 credits
Crystallography, crystal chemistry and the origin and determination of ore minerals and rock-forming minerals. Prerequisite: elementary chemistry and trigonometry.

212 ELEMENTARY PETROLOGY (2 + 3) 3 credits
Identification of the common igneous, sedementary, and metamorphic rocks using hard specimens supplemented with thin sections. Introduction to the principal rock-forming processes. Prerequisite: GEOL 211.

250 GEOLOGY FOR ENGINEERS (2 + 3) 3 credits
Minerals, rocks, principles of physical and structural geology, introduction to ground water, earthquakes and geophysics. Influence of geology on engineering design and construction procedures. Prerequisite: C E 246.

290 ELEMENTARY GEOPHYSICS AND GEODYNAMICS (3 + 0) 3 credits
Elementary geophysical concepts related to gravity, magnetism, seismic waves. Stress and strain in fault zones, earthquakes and fault creep, earthquake prediction and control. Sea-floor spreading and global tectonics. Prerequisite: GEOL 101, MATH 265.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description)

332 STRUCTURAL GEOLOGY (2 + 6) 4 credits
Structural features of the earth's crust. Laboratory work involves the study and preparation of geologic maps and cross sections. Prerequisite: GEOL 101 and trigonometry.

341 GEOMORPHOLOGY (2 + 3) 3 credits
Surface processes and the development of geomorphic features. Interpretation of topographic maps and air photographs. Emphasis on classic features of the Basin and Range province. Prerequisite or corequisite: GEOL 101 or GEOG 103 and GEOL 332.

351 INTRODUCTION TO GEOCHEMISTRY (3 + 0) 3 credits
Survey of premises and applications of geochemical studies. The distribution of elements in rocks; the periodic table and its usefulness in predicting geochemical behavior; chemical equilibria in natural systems; diadochy and isomorphism; the phase rule and phase equilibria; Eh and pH diagrams. Prerequisite: GEOL 211, 212.

404, 604 INTRODUCTION TO AEROSPACE REMOTE SENSING (2 + 3) 3 credits
Characteristics of electromagnetic radiation in the ultraviolet, visible and solar infrared portions of the spectrum. Physical basis for spectral properties of rocks, soils, vegetation and water. Applications of data collected by aircraft, spacecraft and satellite systems to mineral and energy exploration, engineering and environmental studies and hydrology/hydrogeology. Prerequisite: GEOL 341, 446, 646. (Same as RWF 404, 604.)

414, 614 HYDROLOGIC FLUID DYNAMICS (3 + 0) 3 credits
Physical principles governing natural flows in the land phase of the hydrologic cycle: open channel and saturated/unsaturated porous media flow. Erosion and sediment transport. Prerequisite: PHYS 201, MATH 217. (Same as RWF 414, 614.)

415, 615 GEOLOGICAL THERMODYNAMICS (3 + 0) 3 credits
Reversible and irreversible thermodynamics. Includes first law, second law, Gibbs equation, entrophy production, flows and forces, transport processes, electrochemical processes. Prerequisite: MATH 215, 216.

417, 617 INSTRUMENTAL METHODS IN DETERMINATIVE MINERALOGY (2 + 3) 3 credits
Principles, operations, and applications of available instruments in the qualitative and quantitative investigations of geologic, materials. Includes X-ray, thermal, atomic absorption, and neutron activation analyses.

425, 625 ADVANCED MINERALOGY (2 + 6) 4 credits
Optical crystallography and mineralogy; chemical composition, crystal chemistry and optical properties of tock-forming minerals; introduction to phase petrology and X-ray diffraction theory and application. Prerequisite: CHEM 202, GEOL 212, PHYS 202.

427, 627 ADVANCED PETROLOGY (2 + 6) 4 credits
Description and interpretation of rocks. Emphasis on rock-forming processes as deduced from textural, small-scale structural and mineralogical characteristics. Prerequisite: GEOL 425 or equivalent.

446, 646 PHOTOGEOLOGY-IMAGE INTERPRETATION (1 + 6) 3 credits
Application of photogeologic and image interpretation techniques for study and evaluation of terrestrial landscapes. Corequisite: GEOL 332, 341.

450 FIELD METHODS (0 + 3) 1 credit
Introduction to methods and instruments used by field geologists, including elementary photogrammetry.

451 SUMMER FIELD GEOLOGY 3 or 6 credits
Study and preparation of maps to accompany reports on areas of sedimentary and igneous rocks in the Basin and Range region. Three- or six-week course in geologic field methods beginning in early June. Prerequisite: GEOL 212, 332, 341, 450. Fee to cover cost of board and transportation.

455-456, 655-656 PHYSICS OF EARTH (3 + 0) 3 credits each
Selected topics concerning the earth from the points of view of physicists and geophysicists. Gravitation, magnetism, heatflow, earth's rotation, waves, geochronology, and plate tectonics. Prerequisite: thorough knowledge of differential-integral calculus, vectors, and basic physics; some knowledge of different equations. (Same as PHYS 455-456, 655-656.)

461, 661 INVERTEBRATE PALEONTOLOGY (3 + 3) 4 credits
Structure and evolutionary development of fossil invertebrates and their existing representatives. Application of paleontology to stratigraphic problems. A two-day collecting trip will be arranged early in October. Prerequisite: GEOL 102 or BIOL 383, 384.

462, 662 MICROPALEONTOLOGY (2 + 6) 4 credits
Study of microfossils, chiefly Foraminiferida and Ostracoda. Consideration of other groups including spores and pollen and nannofossils.

464-465, 664-665 STRATIGRAPHIC PALEONTOLOGY (2 + 3) 3 credits each
Succession of invertebrate faunas from the Cambrian to the Pleistocene with emphasis on index fossils, faunal distributions, and paleoecologic systems. Spring term covers Paleozoic; fall term covets Mesozoic and Cenozoic. Prerequisite: GEOL 461.

468, 668 SEDIMENTOLOGY (2 + 3) 3 credits
Processes that deposit and modify sediments and the aspects of sedimentary rocks that allow interpretation of depositional environments. Prerequisite: GEOL 102, 212.

469, 669 PRINCIPLES OF STRATIGRAPHY (3 + 0) 3 credits
History and methods of stratigraphic analysis and applications to geological and geophysical problems. Prerequisite: GEOL 102, 212, 332, 468.

471, 671 ORE DEPOSITS (2 + 3) 3 credits
Genesis and localization of metalliferous ore deposits, including surface expression, secondary effects in the weathering zone, wall rock alteration, and hypogene zoning. Prerequisite: GEOL 212, 332.

474, 674 HYDROGEOLOGY LABORATORY (0 + 3) 1 credit
Field, laboratory and computer experiments in hydrogeology including determination of hydraulic properties, aquifer testing, well design, flow net analysis, hydrogeochemical sampling/analysis. Corequisite: G E 484 or equivalent.

476, 676 NONMETALLIC MINERAL DEPOSITS (3 + 0) 3 credits
Occurrence, distribution, origin, and economic value of the nonmetallic minerals. Prerequisite: GEOL 471.

486, 686 FIELD GEOPHYSICS (0 + 3) 1 credit
Geophysical exploration and engineering: electtical and seismic refraction surveys. Field work, presentation of data, interpretation, and reports. Prerequisite: GEOL 450, 492.

489, 689 EXPLORATION AND MINING GEOLOGY (3 + 3) 4 credits
Geologic and economic principles and the technology used in exploration, evaluation, development, and mining of ore deposits. Mine mapping, field trips. Prerequisite: GEOL 471.

490, 690 ELEMENTARY SEISMOLOGY (2 + 3) 3 credits
Introduction to Geometrical Ray theory; solutions to elastic wave equation in terms of rays; ttansmission/reflection at boundaries of earth structure; from short period waves; seismic instrumentation. Prerequisite: MATH 320, PHYS 202.

491, 691 EARTHQUAKE SEISMOLOGY (2 + 3) 3 credits
Solutions to elastic wave equation in terms modes; the earthquake source; earth structure from long period waves; earthquake statistics and prediction. Prerequisite: GEOL 490.

492, 692 GEOPHYSICAL EXPLORATION (2 + 3) 3 credits
Applied geophysical methods: gravity, magnetics, electrical, and seismic refraction. Field work with geophysical equipment. Discussion of case histories. Prerequisite: GEOL 332, MATH 216, PHYS 152, 202.

494, 694 GEOPHYSICS AND POTENTIAL THEORY (2 + 3) 3 credits
Potential theory and interpretation technique as applied to the gravity, magnetic and electricl methods. Prerequisite: GEOL 492, PHYS 352 (may be taken concurrently) and 473.

495, 695 SPECIAL PROBLEMS 1 to 5 credits each
Independent study or research. Consists of conferences, reading, laboratory or field work. Maximum of 10 credits to pursue different studies.

497, 697 SPECIAL TOPICS IN GEOLOGICAL SCIENCES 1 to 6 credits
Study of selected topics by conferences, lectures, colloquia, seminars, and laboratory or field work. May be repeated to a maximum of 10 credits in different topics.

701-702 ADVANCED GEOLOGY 1 to 5 credits each
(a) General geology, (b) regional geology, (c) mineralogy, (d) petrology, (e) petrography, (f) geochemistry, (g) structural geology, (h) geophysics, (j) geomorphology, (k) paleontology, (m) sedimentation, (n) stratigraphy, (p) mineral deposits, (r) economic geology, (s) ground water, (t) engineering geology, (u) photogrammetry, (v) seismology, (w) instrumental analysis, (x) teaching of earth sciences, (y) mineral exploration, (z) earth science. Consists of either lectures, periodic conferences, supervised reading, laboratory or field work. May be repeated more than once to pursue different studies.

704 ADVANCED AEROSPACE REMOTE SENSING (2 + 3) 3 credits
Thermal and radar remote sensing techniques. Thermal properties of rocks, soils, vegetation and water including thermal inertia and spectral emissivity. Microwave evaluation of surface topography, roughness and dielectytic constant using multi-frequency and multi-polarization radar. Applications of air-

craft, spacecraft and satellite systems to geologic and hydrologic problems. Prerequisite: GEOL 404, 604.

715 GEOCHEMISTRY (3 + 0) 3 credits
Origin and abundance of elements in nature; their distribution and migration in geochemical spheres of the earth; geochemistry of solids; isotope and historical geochemistry. (Alternates with GEOL 724.)

716 LOW TEMPERATURE AQUEOUS GEOCHEMISTRY (3 + 0) 3 credits
Physical chemistry of electrolyte solutions, oxidation and reduction, surface effects, combination diagrams, precipitation and dissolution. Computer used to calculate various thermodynamic parameters. Prerequisite: GEOL 415; GEOL 724 recommended.

718 CHEMISTRY OF ENVIRONMENTAL WATERS AND ISOTOPES (3 + 0) 3 credits
Basic principles of utilizing isotopes to examine hydrologic systems; includes stable and radioactive isotopes. Basic examination of water quality standards. Prerequisite: GEOL 484, 684.

723 VOLCANIC GEOLOGY AND VOLCANOLOGY (2 + 3) 3 credits
Subdivision, mapping, correlation, dating, petrography and volcanotectonic setting of volcanic and volcaniclastic rocks; collapse calderas and other volcanic centers; mineralization in volcanic centers; field trips. Prerequisite: GEOL 332, 425 or equivalent.

724 PHASE PETROLOGY (3 + 0) 3 credits
Phase equilibrium, paragenetic relations, and stabilities of minerals and mineral assemblages in the light of thermodynamic principles. Apparatus and techniques for high P-T experiments related to igneous and metamorphic petrology. Prerequisite: GEOL 415, 615. (Alternates with GEOL 715.)

725 ORE PETROLOGY (2 + 6) 4 credits
Microscopic identification and study of opaque minerals and ore mineral suites. Ore textures and interpretation. Use of X-ray diffraction, reflectance and microhardness determinations in opaque mineral studies. Prerequisite: GEOL 425, 471.

726 VOLCANIC PETROLOGY (2 + 3) 3 credits
Origin and evolution of magmas through partial melting, fractionation and mixing; mineralogy, elemental and isotopic geochemistry, and phase petrology; modern analytical, calculation, and discrimination procedures. Prerequisite: GEOL 425, 427-428 or equivalent; GEOL 725 is desirable.

727 PETROLOGY OF PLUTONIC ROCKS (2 + 3) 3 credits
Theoretical and petrographic investigations of crystallization of silicate melts in the plutonic environment. Includes consideration of magma source and the magmatic-metamorphic boundary problem. Prerequisite: GEOL 425 and 427-428 or equivalent. (Alternates with GEOL 728.)

728 METAMORPHIC PETROLOGY (2 + 3) 3 credits
Theoretical and petrographic study of metamorphic mineral assemblages including problems of equilibrium-disequilibrium, process lending to the development of fabric, and elementary petrofabrics. Prerequisite: GEOL 425 and 427-428 or equivalent. (Alternates with GEOL 727.)

729 SEDIMENTARY PETROLOGY (2 + 3) 3 credits
Methods of study of the properties of sedimentary rocks leading to the interpretation of syngenetic, diagenetic and epigenetic history. Prerequisite: GEOL 425, 469.

730 ADVANCED GEOLOGY OF NEVADA (2 + 0) 2 credits
Tectonic and stratigraphic development of Nevada through geologic time. A two- or three-day field trip to significant areas is required early in the semester. Prerequisite: stratigraphy and structural geology.

731 STRUCTURAL GEOLOGY SEMINAR (2 + 3) 3 credits
Structural features of the earth's crust; their distribution and the mechanics of their formation. Prerequisite: GEOL 332.

735 NEOTECTONIC GEOLOGY (1 + 3) 2 credits
Relationship between earthquake or aseismic tectonic activity and deformation. Methods and principles for determining design earthquakes.

736 ACTIVE FAULTING (1 + 3) 2 credits
Tectonic, geomorphic and soil-stratigraphic character of active faults and folds of extensional, compressional and transform settings.

740 DESIGN OF SURFACE AND UNDERGROUND EXCAVATIONS (3 + 0) 3 credits
Design techniques for excavations in hard and soft rocks, soil masses. Stability problems. Rock and soil reinforcement, lining design. Computer applications, field trips. Prerequisite: GEOL 485, C E 492.

741 STATE OF THE ART IN GEOLOGICAL ENGINEERING (3 + 0) 3 credits
Recent advances in geological engineering research. Materials just published and not incorporated into other courses. Prerequisite: GEOL 740.

743 GEOSTATISTICS (3 + 0) 3 credits
Introduction to geostatistical data estimation using the concepts of variograms, kriging, cokriging, multivariate techniques, correlation analysis and regression. Prerequisite: MATH 251.

750 PRIMARY SEDIMENTARY STRUCTURES (3 + 0) 3 credits
Features of sedimentary rock attributed to their environment of deposition and techniques used to constrain their interpretation. Prerequisite: GEOL 469 or 669, or equivalent.

771 HYDROTHERMAL MINERAL DEPOSITS (2 + 3) 3 credits
Field relations; active geothermal and fossil hydrothermal systems; ore transport and precipitation mechanisms; vein materials and alteration mineral assemblages; stable-isotope and fluid-inclusion chemistry. Prerequisite: GEOL 425, 471 or equivalent.

773 MINERAL EXPLORATION SEMINAR (1 + 0) 1 credit
Seminar on a current topic in geology, geophysics, or geochemistry in exploration for hard minerals in the Cordilleta.

774 ADVANCED SEISMOLOGY I (3 + 0) 3 credits
Advanced applications of theory and experiments to seismological problems; body wave, and source theory; problems in modern seismometry.

775 ADVANCED SEISMOLOGY II(3 + 0) 3 credits
Advanced applications of theory and experiments to seismological problems; surface wave, free oscillation and source theory.

779 COMPUTER ANALYSIS OF AEROSPACE REMOTE SENSING DATA (2 + 3) 3 credits
Principles of computer processing of electromagnetic remote sensing data including computer systems and software programs used for radiometric and geometric correction, filtering, image enhancement, image transformation and image classification. Applications of computer processing techniques to mineral and energy exploration, engineering and environmental geology and hydrology/hydrogeology. Prerequisite: GEOL 404, 604 or 704.

782 HYDROLOGY/HYDROGEOLOGY SEMINAR (0 + 3) 1 credit
(See RWF for description.)

783 GROUNDWATER HYDRAULICS (3 + 0) 3 credits
Mechanics of groundwater flow through porous and fractured media; boundary conditions and analytical solutions to subsurface flow problems including flow to wells; aquifer parameter estimation. Prerequisite: GEOL 484, 684; M E 300 or MATH 320.

784 UNSATURATED GROUNDWATER FLOW (3 + 0) 3 credits
Theory of fluid, contaminant, and vapor transport in the vadose zone including the relevant surface physics and chemistry, thermodynamics, and appropriate mathematical development. Prerequisite: GEOL 783.

785 INTRODUCTION TO GROUNDWATER MODELING (3 + 0) 3 credits
Numerical solution of the ordinary and partial differential equations of groundwater flow and contaminant transport. Emphases on learning methodology and solving applied problems. Prerequisite: FORTRAN, GEOL 783.

786 CONTAMINANT TRANSPORT IN GROUNDWATER FLOW SYSTEMS (3 + 0) 3 credits
Theoretical and applied study of solute transport phenomena. Analytical and numerical solutions of the advective-dispersion equation and other techniques for solving groundwater contamination problems. Prerequisite: MATH 320, GEOL 783.

789 SEMINAR IN AEROSPACE REMOTE SENSING (1 + 0 or 3) 1 or 2 credits
Presentations on student and faculty research in aerospace remote sensing. Reviews of current research topics involving the applications of aerospace methods to study of geoscience problems in the Great Basin. Prerequisite: GEOL 404, 604, 704 or consent of instructor.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

201 GEOLOGY OF NEVADA (2 + 0) 2 credits
203 PROSPECTING TECHNIQUES (1 + 1 or 2) 1 to 3 credits *S/U only*
381 APPLIED GEOLOGY (3 + 0) 3 credits
481, 681 TECTOGENESIS AND GEOTECHNOLOGY (2 + 6) 4 credits

482, 682 GEOLOGY OF ENERGY (3 + 0 or 3) 3 or 4 credits
487, 687 MINING GEOLOGY (2 + 3) 3 credits
488, 688 EXPLORATION GEOLOGY (3 + 0) 3 credits
651 SUMMER FIELD GEOLOGY 3 or 6 credits
710 HISTORY OF GEOLOGY (2 + 0) 2 credits
780 HYDROGEOLOGIC SYSTEMS (3 + 0) 3 credits
790 MINERAL INDUSTRY SEMINAR 1 to 3 credits

HISTORIC PRESERVATION (H P)

400, 600 PRINCIPLES OF HISTORIC PRESERVATION (3 + 0) 3 credits
Development of preservation movement and philosophy in the U.S. and Europe; legal aspects and subfields of historic preservation. Case studies of local, state and federal projects and problems. Prerequisite: nine credits of history, anthropology or political science.

401, 601 LAWS AND POLICIES (3 + 0) 3 credits
Intensive review of agencies, laws, guidelines, policies, ordinances and building codes relating to historic preservation and its sub-fields. Case studies in preservation law. Prerequisite: H P 400 or 600.

402, 602 HISTORY OF AMERICAN ARCHITECTURE (3 + 0) 3 credits
Survey of major historic American architectural styles and European antecedents; consideration of architectural history in relation to historic preservation planning and technology.

405, 605 HISTORIC PRESERVATION SURVEY AND PLANNING (3 + 0) 3 credits
Survey archival and field research practices; formulation of historic preservation plans; procedures for integration with local and regional master plans. Case studies. Prerequisite: H P 400, 401, 600, 601.

470, 670 RESEARCH PRACTICUM (3 + 0) 3 credits
Field and archival recording and research; methods of recording historic structures and objects; development of historic overlays; nomination procedures of the National Register of Historic Places. Prerequisites: H P 400, 401, 600, 601.

475, 675 TECHNIQUES OF PRESERVATION AND CONSERVATION (3 + 0) 3 credits
Methods, techniques and materials for preserving, stabilizing, restoring and adaptively reusing historic structures; conservation methods for prehistoric sites. Field trips to local and regional preservation projects. Prerequisites: H P 400, 401, 600, 601.

480, 680 INTERNSHIP (3 + 0) 3 credits *S/U only*
Practical working experience in local, state or federal historic preservation agencies. Maximum of 6 credits. Prerequisite: H P 400, 401, 600, 601.

499, 699 SPECIAL PROBLEMS 1 to 6 credits
Research or reading in special topics under supervision. Maximum of 6 credits. Prerequisite: H P 400, 401, 600, 601.

HISTORY (HIST)

101 UNITED STATES (3 + 0) 3 credits
U.S. political, social, economic, diplomatic and cultural development from colonial times to 1865. Includes examination of the U.S. Constitution and satisfies the U.S. Constitution requirement.

102 UNITED STATES (3 + 0) 3 credits
U.S. political, social, economic, diplomatic and cultural development from 1865 to the present. Includes examination of the Nevada Constitution and satisfies the Nevada Constitution requirement.

105 EUROPEAN CIVILIZATION (3 + 0) 3 credits
Development of western civilization from the dawn of history to 1648.

106 EUROPEAN CIVILIZATION (3 + 0) 3 credits
Development of western civilization from 1648 to the present.

111 SURVEY OF AMERICAN CONSTITUTIONAL HISTORY (3 + 0) 3 credits
Origins and history of the constitutions of the U.S. and state of Nevada; surveys the development of American judicial interpretations and institutions. Satisfies the U.S. and Nevada Constitutions requirements.

202 AMERICAN MILITARY HISTORY (2 + 0) 2 credits
Review from 1776, emphasizing wars, interwar periods, military thought and policy, and relationship of the armed forces to society.

217 NEVADA HISTORY (3 + 0) 3 credits
Nevada history from early exploration to the present. Includes examination of the Nevada Constitution and satisfies the Nevada Constitution requirement.

281 INTRODUCTION TO THE HISTORY OF SCIENCE (3 + 0) 3 credits
History of the physical, mathematical, natural, biological and medical sciences from the ancient world to the Scientific Revolution of the 17th century.

282 INTRODUCTION TO THE HISTORY OF SCIENCE (3 + 0) 3 credits
History of the physical, mathematical, natural, biological and medical sciences from the 17th century to the present.

301-302 IDEAS, VALUES AND CULTURES (3 + 0) 3 credits
Ideas, values and cultures as they relate to the concepts of man, society and the cosmos. Includes Western, non-Western and women's primary source material.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

310 MUSEUM TRAINING FOR HISTORIANS (2 + 2) 3 credits
Operation and administration of historical museums, including training in archival procedures, publications and related museum management procedures.

312 THE EXPANSION OF THE U.S. (3 + 0) 3 credits
Expansion and growth of the U.S. with emphasis on the "westward movement"; the conquest and settlement of regions west of the Appalachian Mountains.

315 TRANS-MISSISSIPPI WEST (3 + 0) 3 credits
U.S. exploration, conquest and settlement of western North America.

316 AMERICAN ENVIRONMENTAL HISTORY (3 + 0) 3 credits
American attitudes and policies toward the environment emphasizing themes of exploitation, preservation and conservation from the Puritans to the late 20th century ecological movement.

317-318 HISTORY OF RELIGION IN THE U.S. (3 + 0) 3 credits each
Selected topics on major trends, issues, and personalities within American religious traditions and their relationship to the political and social life of the nation. HIST 317 covers the period to 1900; 318 covers the 20th century.

328 CONTEMPORARY CIVILIZATION (3 + 0) 3 credits
Institutional developments, events, trends and conflicts since World War II are summarized and interpreted in the light of the recent past.

343-344 LATIN AMERICA (3 + 0) 3 credits each
Development of the Iberian states as colonizing powers, the discovery and conquest of America, the growth of political, social and economic institutions during the Colonial period, the independence movement in Spanish and Portuguese America and the historical development of the leading republics since independence.

345 LATIN AMERICA IN WORLD AFFAIRS (3 + 0) 3 credits
Emphasizes the relations of Latin America with the U.S. and other world powers; Pan-Hispanism; Pan-Americanism and its relation to world organization; the role of Latin America in the community of nations.

346 MEXICO, CENTRAL AMERICA, AND THE CARIBBEAN (3 + 0) 3 credits
Discovery, conquest, growth of political, social and economic institutions. Socio-economic development and foreign relations since 1850 are stressed.

351-352 THE FAR EAST (3 + 0) 3 credits each
Historical development of China, Japan and Southeast Asia in the 19th and 20th centuries. Emphasis is placed upon such subjects as commercial and colonial expansion, the opening of China and Japan, the growth of colonial imperialistic and nationalistic interests among the western powers and Japan, and the rise of Communist power in Asia.

353 RECENT HISTORY OF THE FAR EAST (2 + 0) 2 credits
The Far East in the aftermath of World War II.

361-362 THE MIDDLE EAST (3 + 0) 3 credits each
Survey of the Middle East with emphasis on its impact on European history.

371-372 ANCIENT CIVILIZATION (3 + 0) 3 credits each
Political, social, economic and cultural development of the ancient Near East, Greece and Rome; the elements of ancient civilization that contributed vitally to medieval and modern civilization.

373 MEDIEVAL CIVILIZATION (3 + 0) 3 credits
Europe from the disintegration of the Roman Empire to the age of the Renaissance.

377-378 EUROPEAN SOCIAL HISTORY (3 + 0) 3 credits each
Topical survey of European society emphasizing the formation of classes, the

family, women, crime, material culture and popular culture. HIST 377 covers preindustrial Europe; HIST 378 covers industrial and postindustrial Europe.

384 THE AGE OF THE RENAISSANCE (3 + 0) 3 credits
Cultural, social, intellectual, religious, economic and political history of Europe, 1300-1520.

385 REFORMATION EUROPE AND THE AGE OF THE BAROQUE (3 + 0) 3 credits
Political, social, intellectual, religious and cultural history of Europe in the 16th and 17th century.

393-394 ENGLAND AND THE BRITISH EMPIRE (3 + 0) 3 credits each
History of England and its empire: social, economic and political development. Background of English literature and law. Second semester begins at Elizabethan Age.

395 THE IRISH AND OTHER CELTS: A HISTORY OF SURVIVAL (3 + 0) 3 credits
The 3,000-year history and culture of the Irish, Scots, Welsh and related peoples. Special notice is given to their tenuous survival and extensive migrations.

401-402, 601-602 AMERICAN CONSTITUTIONAL HISTORY (3 + 0) 3 credits each
Narrative and interpretive study of the origin and growth of the constitutional system. May be used to satisfy requirement in U.S. Constitution.

403-404, 603-604 AMERICAN INTELLECTUAL AND SOCIAL HISTORY (3 + 0) 3 credits each
Topical examination of the major currents in American life with emphasis on social, cultural, and intellectual development, and the impact of industrialization in the modern world.

406, 606 HISTORY OF AMERICAN IMMIGRATION (3 + 0) 3 credits.
Origins, experiences, and receprion of U.S. immigrants from the colonial period to the present.

407-408, 607-608 AMERICAN DIPLOMATIC HISTORY (3 + 0) 3 credits each
Origins, character and consequences of American foreign policies from the Revolutionary War to the present.

409, 609 U.S. AGRICULTURAL HISTORY (3 + 0) 3 credits
Colonial beginnings of American agriculture, the advance of the American agricultural empire into the greater West, the accompanying industrial revolution in agriculture and the role of government in 20th century agricultural policy. Regional characteristics of American agriculture.

410, 610 20TH CENTURY AMERICAN WEST (3 + 0) 3 credits
Political, economic, and social problems growing out of the twentieth century West, including the Plains States, the Rocky Mountains and Pacific Coast with emphasis on the West's integration into the industrial and urban life of the nation and the interaction of the region with the Federal Government.

411, 611 U.S.: COLONIAL PERIOD TO 1763 (3 + 0) 3 credits
Origins of the North American colonies; development of colonial society, culture and institutions; international rivalry for North American supremacy.

412, 612 ERA OF THE AMERICAN REVOLUTION, 1763-1789 (3 + 0) 3 credits
Imperial reorganizarion and colonial protest, the War for Independence, government under the Articles of Confederation, formation of the Federal Constitution.

413, 613 U.S.: NATIONAL PERIOD, 1789-1850 (3 + 0) 3 credits
Development of the new nation, the Federalists and the Jeffersonians, the War of 1812, the Era of Good Feelings, the Age of Jackson, expansion and controversy to the Compromise of 1850.

414, 614 U.S.: CIVIL WAR AND RECONSTRUCTION, 1850-1877 (3 + 0) 3 credits
Intensification of sectional strife, the road to disunion, the Civil War, the era of Reconstruction.

415, 615 U.S.: THE NEW NATION, 1877-1914 (3 + 0) 3 credits
Political, economic and social developments in years of rapid industrialization and western settlement; emergence as a world power; the Progressive Movement.

416, 616 U.S.: RECENT HISTORY 1914 to PRESENT (3 + 0) 3 credits
World War I and its impact, normalcy and prosperity, the Great Depression and the New Deal, World War II, the U.S. in the Atomic Age.

417, 617 NEVADA AND THE WEST (3 + 0) 3 credits
Topical examination of Nevada history in relation to issues of western and national significance, e.g., mining, transportation, conservation and development of water resources.

418, 618 HISTORY OF U.S.-AMERICAN INDIAN RELATIONS (3 + 0) 3 credits
U.S. government relations with tribes and inter-tribal relations from colonial times into the 20th century with emphasis upon constitutional questions.

421-422, 621-622 HISTORY OF RUSSIA (3 + 0) 3 credits each
Development of Russian history and society from the Varangians to the present.

423-424, 623-624 HISTORY OF GERMANY (3 + 0) 3 credits each
Institutional, social, economic and political development of the German states to 1848. Continued through the period of German unification, Empire, the Weimar Republic and the Nazi era.

427, 627 INTELLECTUAL HISTORY OF MODERN EUROPE (3 + 0) 3 credits
Examination of selected ideas and thinkers who have influenced European civilization since the Renaissance.

428, 628 BASQUE HISTORY (3 + 0) 3 credits
Political, social and economic history of the Basque provinces and their unique ethnic status within Spain and France.

447-448, 647-648 TOPICAL STUDIES IN AFRICAN HISTORY (3 + 0) 3 credits each
Ancient empires, the peopling of Africa by its modern inhabitants, European imperialism/colonialism, collaboration and resistance to colonial rule.

449, 649 TOPICAL STUDIES IN AFRICAN HISTORY SINCE 1945 (3 + 0) 3 credits
Elites and masses in modern Africa, independence and neocolonialism, white Africa, modern African intellectual thought, African nationalism.

455-456, 655-656 BLACK EXPERIENCE IN AMERICA (3 + 0) 3 credits each
Historical treatment of the Black experience in America, emphasizing the 17th to 20th centuries. Second semester begins in Reconstruction.

461, 661 EUROPEAN CRISIS AND THE AGE OF THE ENLIGHTENMENT (3 + 0) 3 credits
Development of the economic, political, social and cultural patterns of Europe during the Age of Reason and the Age of the Enlightenment.

462, 662 ERA OF THE FRENCH REVOLUTION, 1763-1815 (3 + 0) 3 credits
Europe during the age of democratic revolution and the rise and fall of Napoleon Bonaparte.

463, 663 EUROPE: 1815-1914 (3 + 0) 3 credits
Development of the economic, political, social, and cultural patterns of Europe from Waterloo to the outbreak of World War I.

464, 664 EUROPE: 1914 TO THE PRESENT (3 + 0) 3 credits
Detailed study of an age of conflict and its interludes of peace.

473, 673 PATTERNS OF MEDIEVAL CULTURE (3 + 0) 3 credits
Selected topics concerning medieval economic, social, political, religious and cultural developments such as feudal society, religious orthodoxy and dissent, universities and chivalry. Maximum of 6 credits.

475, 675 STUDIES IN URBAN HISTORY (3 + 0) 3 credits
Topical examination of urban development stressing the city in its various political, social and economic aspects. Geographical and chronological emphasis determined by the instructor. Maximum of 6 credits.

481, 681 PROBLEMS IN THE HISTORY AND PHILOSOPHY OF SCIENCE (3 + 0) 3 credits
Selected topics in scientific revolutions, theory choice, discovery, relations of history, philosophy, sociology and psychology of science. Maximum of 6 credits. (Same as PHIL 481, 681.)

490, 690 HISTORY OF THE MEDICAL SCIENCES (3 + 0) 3 credits
Topical history of the conceptual, instrumental and institutional development of the medical sciences from the Greeks to the present.

495, 695 ADVANCED HISTORICAL STUDIES 1 to 3 credits
Maximum of 9 credits. Topics vary from semester to semester.

497, 697 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

703 ADVANCED STUDIES IN HISTORY 1 to 3 credits
Maximum of 6 credits.

705 GRADUATE READINGS IN HISTORY 1 to 3 credits
Maximum of 9 credits.

710 SEMINAR IN MEDIEVAL HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

712 SEMINAR IN MODERN EUROPEAN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

713 SEMINAR IN LATIN AMERICAN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

716 SEMINAR IN FAR EASTERN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

720 SEMINAR IN U.S. COLONIAL HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

721 SEMINAR IN 19TH CENTURY U.S. HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

722 SEMINAR IN 20th CENTURY U.S. HISTORY 3 + 0) 3 credits
Maximum of 9 credits.

724 TOPICAL SEMINAR IN U.S. HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

725 SEMINAR IN NEVADA AND FAR WESTERN HISTORY 3 + 0) 3 credits
Maximum of 9 credits.

737 COLLEGE TEACHING IN HISTORY (3 + 0) 3 credits
Theory and practice in the teaching of history in college. Maximum of 6 credits.

783 HISTORIOGRAPHY (3 + 0) 3 credits
Extensive readings in the literature of historical methods and a comprehensive survey of historical writing from ancient times to the present.

784 PROBLEMS IN HISTORIOGRAPHY (3 + 0) 3 credits
Prerequisite: HIST 783 or equivalent.

785 U.S. HISTORIOGRAPHY (3 + 0) 3 credits
Readings in the literature of American historical writing from colonial times to the present.

793 INDEPENDENT STUDY 1 to 3 credits
For students majoring in the tutorial doctoral program in Basque studies. Maximum of 9 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

HONORS PROGRAM (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, and (c) communications. Maximum of 12 credits.

210 GENERAL HUMANITIES (3 + 0) 3 credits
An integrated perspective of the humanistic disciplines. Three fine arts with philosophy provides the basic materials: literature, graphic arts, and music.

240 AMERICA AND THE FUTURE OF MAN 2 credits
Consists of twenty 1400-word printed lectures written by some of the nation's distinguished scholars and two seminar sessions conducted by university faculty. Printed lectures include such topics as the impact of change on society and on value systems, biological and ethical implications of advances in medicine and genetics, and the future of technology and its effects on the quality of life.

300 SEMINAR THE CITY (3 + 0) 3 credits
Topic oriented analysis of selected subjects consistent within the framework and goals of the honors program. (a) The city, (b) the university, and (c) communications.

410 AREA STUDY 3 credits
View of a particular region of the world from the perspective of several academic disciplines. Maximum of 9 credits.

421 AGGRESSION: ROOTS AND MANIFESTATIONS (3 + 0) 3 credits
Causes and consequences of a basic animal and human motive involving several points of view; genetic, biological, psychological, sociological, historical, and political. Maximum of 6 credits.

432 RACE AND ETHNIC RELATIONS (3 + 0) 3 credits
Consideration of both American and international problems of racial and ethnic relations drawing from anthropology, sociology, psychology, history, and literature.

435 BRIDGING INTELLECTUAL DISCIPLINES (3 + 0) 3 credits
Methods, values, theories, and directions of two or more academic disciplines in search of their common ground, as well as differences in approaches. Maximum of 6 credits.

443 SCIENCE AND CULTURE (3 + 0) 3 credits
Historical and philosophical presentation of cultural effects of scientific and technological innovation. Explores ways that science affects various humanistic activities. Maximum of 6 credits.

454 THE CREATIVE ARTS (3 + 0) 3 credits
Interaction of literature and fine arts. Investigation of creative arts including art history, involving printing, sculpture, music, architecture, and literature. Maximum of 6 credits.

465 AMERICA: INSTITUTIONS AND VALUES (3 + 0) 3 credits
One or more American institutions or values with a consideration of their evolution and contemporary significance. Maximum of 9 credits.

476 THE FUTURE (3 + 0) 3 credits
Investigation into future relations between man, his social structure, and his environment. Maximum of 9 credits.

487 REVOLUTION: SOURCES AND MANIFESTATIONS (3 + 0) 3 credits
Sources and manifestations of economic, social, and political revolution in various countries and areas. Maximum of 6 credits.

498 DYNAMICS OF NATIONAL DEVELOPMENT (3 + 0) 3 credits
Problems and processes involved in national efforts to achieve various developmental goals. Means and values are emphasized. Maximum of 6 credits.

HORTICULTURE (HORT)

163 LANDSCAPE DESIGN AND CONSTRUCTION (1 + 6) 3 credits
Design using plants to enhance man's environment with specific emphasis on single family dwellings.

164 HORTICULTURAL SCIENCE (3 + 0) 3 credits
Introduction to horticulture, including principles of plant structure and function, culture, production, management and marketing.

260 ORNAMENTAL PLANTS I (2 + 6) 4 credits
Identification of ornamental plants using plant keys and emphasizing landscape characteristics and uses of ornamentals. Prerequisite: HORT 164 or BIOL 202.

263 INTERIORSCAPING (2 + 3) 3 credits
Discussion of methods of indoor foliage and flowering plant production and their effect in interior landscape.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

361 TURFGRASS PRODUCTION AND MANAGEMENT (2 + 3) 3 credits
Business and cultural management of turfgrass production and marketing emphasizing species selection, cultural requirements, establishment, maintenance practices, including equipment and personnel management. Prerequisite: HORT 164 or BIOL 202, AGRO 222.

362 NURSERY PRODUCTION AND MANAGEMENT (2 + 6) 4 credits
Commercial nursery management practices and how students are taught to propagate, schedule, produce and market nursery materials. Field trip required.

364 GREENHOUSE PRODUCTION AND MANAGEMENT
(2 + 6) 4 credits
Students learn commercial greenhouse design and management including how to schedule, produce and market crops. Field trip required. Prerequisite: HORT 164, AGRO 222.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

465, 665 URBAN FORESTRY (3 + 0) 3 credits
Urban forestry management and administration will be taught including surveying, cultural practices, program development and working in the public domain. Prerequisite: HORT 164, 260, 362, AGRO 222.

480 INDEPENDENT STUDY 1 to 3 credits
Special problems in floriculture, fruit crops, greenhouse operations, nursery operation, ornamentals, plant propagation, turfgrass or vegetable crops.

485, 685 SPECIAL TOPICS (1 to 4 + 0) 1 to 4 credits
Review of recent research, innovations and developments in horticultute. Maximum of 8 credits.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

791 SPECIAL TOPICS 1 to 3 credits
Intensive study of a special problem in horticulture. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 3 credits
Topics include floriculture, fruit crop production and processing, greenhouse and nursery operations, ornamentals, plant propagation, turfgrass or vegetable crop production and processing. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION *S/U only*

796 PROFESSIONAL PAPER 1 or 2 credits *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP 1 to 2 credits *S/U only*
Directed experience in teaching in a classroom, laboratory or Cooperative Extension setting. Preparation, delivery and evaluation of instruction. Written report required. May be repeated in different topics for a maximum of 3 credits.

Inactive Courses

165 HORTICULTURAL PRACTICES (1 + 3) 2 credits
166 PLANT PROPAGATION (1 + 6) 3 credits
261 ORNAMENTAL PLANTS II (0 + 6) 2 credits
367 FRUITCROP PRODUCTION (2 + 3) 3 credits
368 VEGETABLE CROP PRODUCTION (2 + 3) 3 credits

HUMAN AND COMMUNITY SCIENCES (HCS)

101 INTRODUCTION TO HUMAN AND COMMUNITY SCIENCES (3 + 3) 3 credits
Survey of current issues related to individuals, families, and communities presented by a variety of disciplines. Forty-five hours of community work is required.

HUMAN DEVELOPMENT AND FAMILY STUDIES (HDFS)

131 CHILD DEVELOPMENT (3 + 0) 3 credits
Overview of growth and development from the prenatal period through adolescence. Recommended corequisite: HDFS 233.

132 CHILD GUIDANCE AND PARENTING (3 + 0) 3 credits
Guiding the behavior of children from infancy through adolescence using child development principles appropriate for teachers, parents, and others working with children. Prerequisite or corequisite: HDFS 131 or 274.

200 SPECIAL TOPICS 1 to 3 credits
Study under supervision of a staff member on topics of special interest to the learner. Maximum of 3 credits.

233 PRACTICUM WITH CHILDREN AND FAMILIES (1 + 2 to 14) 1 to 5 credits
Observing and working in a preschool setting with children and their families. Advance approval required for more than one credit. Prerequisite or corequisite: HDFS 131 or 274. Maximum of 9 credits.

270 FIELD EXPERIENCE 1 to 3 credits *S/U only*
Work with one or more community agencies or firms that utilize expertise in the field of human development and family studies. Maximum of 3 credits.

274 INDIVIDUAL AND THE FAMILY (4 + 0) 4 credits
Individual bio-psycho-social development. Roles, relationships, and interaction within varied family systems. Lifespan, gender, ethnic and socioeconomic correlates. Critical societal and developmental issues facing families.

341 PERSONAL FINANCE (3 + 0) 3 credits
Factors relevant to family's and individual's economic functioning in American society. Personal use of money: earning, spending, saving, borrowing, investing, planning.

371 FAMILY RESOURCE MANAGEMENT (3 + 0) 3 credits
Theory and application in the identification and allocation of human and nonhuman resources. Decision making, communication, time and financial management. Prerequisite: EC 101 or 102; HDFS 274; PSY 101; or SOC 101.

374 COMMUNICATIONS IN HOME ECONOMICS (3 + 0) 3 credits
Communications process and current techniques in the effective transmission of home economics ideas, attitudes, and subject matter to individuals, families, groups, and mass audiences. Prerequisite: speech.

376 ISSUES IN FAMILY HEALTH (1 + 1) 1 credit
Analysis of topics related to the family system, physical or mental disorders, health, care and well-being of its members. Reciprocal influences on and from society. Prerequisite: 6 credits of human development.

400, 600 SPECIAL PROBLEMS 1 to 6 credits
Individual study or tesearch in topic of special interests. Maximum of 9 credits.

430, 630 HUMAN SEXUALITY (3 + 0) 3 credits
Exploration of masculine and feminine roles as they relate to human development, personal functioning, interpersonal relations and family living in a complex, changing society. Prerequisite: 6 credits in psychology, sociology or biological sciences.

431, 631 ADVANCED STUDIES IN HUMAN DEVELOPMENT AND FAMILY (3 + 0) 3 credits
Theory, research, and issues in one of the following: (a) infancy, (b) early childhood, (c) middle childhood, (d) adolescence, or (e) adult development and aging. Prerequisite: 6 credits in child and family studies, psychology, or sociology.

432, 632 PRESCHOOL FOR SPECIAL CHILDREN AND THEIR FAMILIES (3 + 0 or 3) 3 or 4 credits
Preschool for children with physical, social/emotional and cognitive handicaps and gifted children. Particular emphasis on involvement of the families. Fourth credit is experience with special children in a preschool setting. Prerequisite: 6 credits in child development or special education.

433, 633 ADMINISTRATION OF CHILD AND FAMILY SERVICES (3 + 0) 3 credits
Administration of programs serving children, adolescents, adults and families; includes philosophy, staffing, operations and legal parameters. Prerequisite: HDFS 131 or 274 or equivalent.

434, 634 FAMILY EDUCATION AND INTERVENTION PROGRAMS (3 + 0) 3 credits
Study and analysis of currently available educational, intervention and skills-training programs. Developing needs assessments, programs for presentation and evaluation components. Prerequisite: HDFS 274.

435, 635 FAMILY INTERACTION FOR PRESCHOOL SPECIAL EDUCATION (1 + 0) 1 credit
Principles of family education and intervention program. Only for students in the early childhood special education certificate program.

436, 636 FAMILY INTERACTION (3 + 0) 3 credits
Review of research and theory on family dynamics and process. Application of concepts and assessments via mass media and interviews. Examination of functional and dysfunctional patterns. Prerequisite: 6 credits in human development and family studies or other social sciences.

437, 637 DEATH AND DYING: FAMILY AND LIFESPAN PERSPECTIVES (3 + 0) 3 credits
Overview of death and dying, coping and adaptation as an individual and family experience from prenatal development through adulthood. Emphasis on both personal and professional applications. Prerequisite: 6 credits in psychology, sociology, or human development.

438, 638 CHILDREN AND FAMILIES IN A MULTIETHNIC SOCIETY (3 + 0) 3 credits
Lifestyles, values and needs of children and their families from diverse ethnic groups. Prerequisite: 6 credits in sociology, psychology, or human development.

440, 640 PERSPECTIVES ON AGING (3 + 0) 3 credits
Patterns and dynamics of later life focusing on the family and total ecosystem: natural, socio-cultural, economic, political and human-built environments. Prerequisite: 6 credits of social science or human development.

441, 641 CONSUMER CREDIT (3 + 0) 3 credits
Analysis of use and misuse of consumer credit. Investigation of policies and practices of credit grantors. Examination and application of theories of credit counseling. Prerequisite: EC 101 or 102.

445, 645 THE CONSUMER IN OUR SOCIETY (3 + 0) 3 credits
Consumer problems, representation, information and protection. The economic system and the role of consumers. The economy and marketplace

from the consumer's point of view. Prerequisite: HDFS 371 or 3 to 6 credits of economics.

451, 651 FINANCIAL PLANNING FOR INDIVIDUALS AND FAMILIES (2 + 2) 3 credits
Using financial management concepts, strategies and theory to develop plans to achieve personal financial goals. Prerequisite: HDFS 341, 441, or 3 credits of economics.

453, 653 HOUSING AND PUBLIC POLICY (3 + 0) 3 credits
Social, economic and political aspects of housing. Local, state and federal policies and programs directed at current housing issues. Prerequisite: EC 102, SOC 101; P SC 103.

458, 658 FAMILIES AND PUBLIC POLICY (3 + 0) 3 credits
Role of the family in decision making and management of public issues; analysis of legislation directly affecting the family, including experience with the legislature and other policymaking bodies. Prerequisite: HDFS 274 or equivalent; 3 credits of political science or history.

470 PREPROFESSIONAL INTERNSHIP (1 + 9 or 24) 3 or 8 credits. *S/U only*
Supervised field experience with one or more community agencies or firms that utilize expertise in the field of human development or family services. Includes seminar.

471 SENIOR THESIS (3 + 0) 3 credits
Research conducted and written in thesis form. Prerequisite: statistics and faculty approval.

472 CONTEMPORARY FAMILY ISSUES (3 + 0) 3 credits
Application of human and community sciences subject matter in the development of problem solving strategies related to issues facing families and individuals.

476, 676 ISSUES IN FAMILY HEALTH (1 + 1) 1 credit
Analysis of issues related to family and health.

700 GRADUATE STUDIES IN HUMAN DEVELOPMENT AND FAMILY STUDIES 1 to 3 credits
Advanced study of problems and research in issues related to individual and family studies. Maximum of 6 credits.

730 FAMILY THEORIES (3 + 0) 3 credits
Analysis of current and classical theories as relates to contemporary family structures and issues. Application of theory to research and special topics.

740 FAMILY ECONOMICS AND MANAGEMENT (3 + 0) 3 credits
Changing household/family composition, resource production, resource needs. Investigation of the relationships between these changes and the managerial and economic activities of households.

771 RESEARCH METHODS (3 + 0) 3 credits
Systematic examination of the scope and methods of inquiry and of the present state of research in human development and family studies.

790 SEMINAR (1 + 0) 1 credit
Clarifies basic philosophical issues in the context of present day society.

791 INTERNSHIP 3 credits
Professional work experience under the supervision of education, business or governmental personnel and university staff member. Advanced approval required. Reports are prepared periodically and at the conclusion of the internship. Prerequisite: HDFS 730, 790 or 740.

796 PROFESSIONAL PAPER 1 to 2 credits *(S/U only)*
Required of all students who wish to complete an advanced degree in the *School of Home Economics* under Plan B.

797 THESIS 1 to 6 credits

798 PROGRAM DEVELOPMENT AND EVALUATION (2 + 2) 3 credits
Examination and application of teaching techniques and evaluation of undergraduate program.

Inactive Courses

232 PRESCHOOL CURRICULUM (3 + 0) 3 credits
373 ISSUES IN CONSUMER COMPETENCE (1 + 0) 1 credit
374 COMMUNICATIONS IN HOME ECONOMICS (3 + 0) 3 credits

INTEGRATED PEST MANAGEMENT (IPM)

100 INTRODUCTION TO INTEGRATED PEST MANAGEMENT (3 + 0) 3 credits
Principles and practices in pest management systems including disease, insect and weed management in production agriculture.

210 PRINCIPLES OF BEE MANAGEMENT (2 + 0) 2 credits
Consideration of the basic principles of bee culture and the management of bees for honey production and pollination.

316, 416 INTERNSHIP 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

356 WEEDS AND WEED CONTROL (2 + 3) 3 credits
Principles and practices of weed control. Recognition of important weed species. Prerequisite: BIOL 202.

390 RANGE AND FOREST ENTOMOLOGY-PATHOLOGY (2 + 3) 3 credits
Recognition of causal agents and damage produced by insects and diseases to range and forest species. Includes concepts of prevention and control of these pests in relation to resource management. Prerequisite: BIOL 201 or 202, 212.

391 GENERAL ECONOMIC ENTOMOLOGY (2 + 3) 3 credits
Introduction to study and principles of control of insects and related organisms which affect production of animals, crops and management of range and forests. Graduate credit not available for integrated pest management majors, entomology option. Prerequisite: BIOL 201 or 202.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest in the pest sciences, integrated pest management and pesticide chemistry and toxicology.

412, 612 INSECT PESTS OF PLANTS (3 + 0) 3 credits
Detailed study including principles of control of more economic species of insects and related organisms which affect production of plants. Prerequisite: IPM 391 or BIOL 360.

422, 622 INSECT PESTS OF ANIMALS (3 + 0) 3 credits
Detailed study including principles of control of more economic species of insects and related organisms which affect the urban homeowner and the health and well-being of man and domesticated animals. Prerequisite: IPM 391 or BIOL 360. (Same as A SC 422, 622.)

452, 652 INTEGRATED PEST MANAGEMENT STRATEGIES (3 + 0) 3 credits
Detailed examination of the philosophies and concepts of integrated pest management and the practical implementation of integrated pest management programs. Prerequisite or corequisite: IPM 322, 356, 471.

471, 671 PLANT PATHOLOGY (3 + 3) 4 credits
Nature, cause and control of plant diseases. Prerequisite: BIOL 202.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) integrated pest management, (b) entomology, (c) plant pathology.

485, 685 SPECIAL TOPICS 1 to 3 credits
Presentation and review of recent research, techniques and developments in the pest sciences. May include the areas of integrated pest management, entomology, plant pathology, weed science, pesticide chemistry and toxicology. Maximum of 6 credits.

712 ENVIRONMENTAL STRESS AND PLANT RESPONSE 3 credits
Specific adverse physico-chemical factors which influence the growth and development of green plants. Focuses on abiotic plant disease with emphasis on stresses induced by mineral deficiencies, air pollutants, toxins, temperature and light disorders and nonparasitic organism interaction. Diagnosis, etiology and controls to ameloriate these problems. Prerequisite: AGRO 327, BIOL 355, 356.

720 INSECT ECOLOGY (3 + 0) 3 credits
Principles governing activity and distribution of insects in relation to their environment. Prerequisite: IPM 391 or BIOL 360. (Same as BIOL 720.)

731 PESTICIDE RESIDUE ANALYSIS TECHNIQUES (2 + 3) 3 credits
Emphasizes proper sampling techniques, laboratory analysis, significance for pesticide residues in the environment. Designed for ecologists, agriculturalists or chemists. Prerequisite: CHEM 142, IPM 332.

756 HERBICIDES AND PLANT GROWTH REGULATORS (3 + 0) 3 credits
Chemistry of herbicides and plant growth regulators, their entry and movement; action in plants and their fate in the environment. Prerequisite: BIOL 355, 356, IPM 356.

775 ADVANCED PLANT PATHOLOGY (3 + 3) 4 credits
Detailed study of plant diseases caused by viruses, nematodes, bacteria and fungi with emphasis on the physiology of pathogenesis. Prerequisite: IPM 471.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

791 SPECIAL TOPICS 1 to 3 credits
Selected topics dealing with current research and developments in the pest sciences, integrated pest management and pesticide chemistry and toxicology. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 3 credits
Individual study of a special problem in (a) integrated pest management, (b) entomology, (c) plant pathology, (d) weed science, (e) pesticide chemistry and toxicology.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 2 credits *S/U only*

797 THESIS 1 to 6 credits
Thesis may be written in area of (a) integrated pest management, (b) entomology, (c) plant pathology, (d) weed science, (e) pesticide chemistry and toxicology.

798 INTERNSHIP 1 to 2 credits
Directed experience in teaching in a classroom, laboratory or Cooperative Extension setting. Preparation, delivery and evaluation of instruction. Written report required. May be repeated in different settings for a maximum of 3 credits.

INTERIOR DESIGN (INTD)

151 FOUNDATIONS FOR DESIGN (1 + 6) 4 credits
Studio study of design principles, elements, graphic ideation and modeling; both two- and three-dimensional aspects are studied.

200 SPECIAL TOPICS IN INTERIOR DESIGN 1 to 6 credits
Study under supervision of a staff member on topics of special interest to the learner. Maximum of 6 credits.

202 FIELD STUDY 1 to 6 credits *S/U only*
Student-faculty seminar including group travel for field study experience. Maximum of 6 credits.

256 INTERIOR DESIGN I (0 + 6) 3 credits
Design of residential interiors appropriate for users; programming, space planning, design, and client presentation. Prerequisite: INTD 151; architectural drafting.

270 FIELD EXPERIENCE 1 to 3 credits *S/U only*
Work with firms that utilize interior design subject matter. Maximum of 3 credits.

275 HOUSING (3 + 0) 3 credits
Housing, both aesthetic and functional, as a framework for family living.

350 SPACE, LIGHT, AND COLOR (3 + 0) 3 credits
Theories and concepts of space, light, and color relative to design. Prerequisite: INTD 151.

353 HISTORY OF INTERIORS (3 + 0) 3 credits
Evolution of design in interiors from antiquity to present.

354 INTERIOR PRESENTATION TECHNIQUES (0 + 6) 3 credits
Professional techniques and media for illustrating interior environments. Prerequisite: INTD 151; architectural drafting.

355 MATERIALS AND RESOURCES (3 + 0) 3 credits
Materials, surfaces, resources, and applications relevant to interior design.

358 INTERIOR DESIGN II (0 + 6) 3 credits
Design problems related to business and institutions. Prerequisite: INTD 256.

400, 600 SPECIAL PROBLEMS IN INTERIOR DESIGN
1 to 10 credits *S/U only*
Individual study or research in fields of special interest. Maximum of 10 credits.

452 CONTEMPORARY DESIGN CONCEPTS (3 + 0) 3 credits
Evolution and formation of design philosophies, movements, and styles which influence contemporary design.

456 PROFESSIONAL PRACTICES FOR INTERIOR DESIGNERS
(3 + 0) 3 credits
Business functions specific to design and construction industry. Prerequisite: 3 credits of business.

459 INTERIOR DESIGN III (0 + 6) 3 credits
Studio in designing interiors for actual clients; complete design process; critiqued by professional panel. Prerequisite: INTD 358.

470 INTERNSHIP 3 credits *S/U only*
Work with one or more firms that utilize interior design subject matter as they work with clientele. Combines a seminar with supervised field experience. Prerequisite: interior design major.

INTERNAL MEDICINE (IMED)

451, 651 CLERKSHIP (2 + 30) 12 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing internal medicine.

461, 661 ELECTIVES 1 to 8 credits
Elective experiences in the major medical subspeciality including: (a) cardiology/EKG reading, (b) clinical neurology, (c) critical care, (d) dermatology, (e) endocrinology/nephrology, (f) gastroenterology, (g) general internal medicine, (h) externship, (j) hematology/oncology, (k) infectious diseases, (m) intensive care, (n) nephrology, (p) nuclear medicine, (q) physical medicine, (r) physical medicine and rehabilitation, (s) pulmonary medicine, (t) medical consultation, (u) research, (v) rheumatology, (w) geriatric medicine, (x) ambulatory care medicine, (y) pain management. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

462, 662 ELECTIVES 2 to 8 credits
Elective experiences in the major medical subspeciality including: (a) cardiology/clinical.

490, 690 INDEPENDENT STUDY 1 to 3 credits

491, 691 THEORY AND PRACTICE OF ECG INTERPRETATION
(1 + 3) 2 credits
Physiology of the cardiac action potential and general theory of the electrical field created by the heart. The different lead systems in relation to spatial vectorcardiogram. Analysis of simple and complex arrhythmias. Classical patterns of contour alterations.

JOURNALISM (JOUR)

101 INTRODUCTION TO JOURNALISM (3 + 0) 3 credits
Survey of the role of newspapers, radio, television, advertising and public relations organizations. Interpretation of the day's news and analysis of media performance.

201 BASIC REPORTING (1 + 6) 3 credits
Fundamentals of reporting. Disciplines of the journalist: correct use of language, deadline pressure and accuracy. Prerequisite: JOUR 101.

203 ADVANCED REPORTING (1 + 6) 3 credits
Handling of more complicated stories and features, outside assignments and interpretive writing. Prerequisite: JOUR 201.

213 WORKSHOP IN HIGH SCHOOL JOURNALISM (0 + 6) 2 credits
Practical application of journalistic theory and technique to teaching of high school journalism, supervision of school newspapers, magazines and yearbooks. Maximum of 4 credits. Prerequisite: JOUR 203.

231 PUBLICITY METHODS (2 + 0) 2 credits
For officers and publicity chairmen, present and prospective, of civic, social, religious, professional, recreational and fraternal organizations in the handling of news of their groups for newspapers and radio stations. Not acceptable toward the requirements for the journalism major.

291 DESKTOP PUBLISHING (0 + 3) 1 credit *S/U only*
Introduction to computerized pagination using selected programs for word processing, graphics and layout.

All journalism courses numbered 300 or above are open only to juniors, seniors and graduates with the advance approval of a faculty adviser.

301-302 IDEAS, VALUES AND CULTURES (3 + 0) 3 credits
Ideas, values and cultures as they relate to the concepts of man, society and the cosmos. Includes Western, non-Western and women's primary source material.

303 MEDIA GRAPHICS (2 + 3) 3 credits
Study and practice in the use of graphics and typography to create effective visual communications.

311 ASSIGNMENT REPORTING (1 + 6) 3 credits
Writing news and feature stories for publication, primarily in the campus newspaper. Prerequisite: JOUR 203.

313 PHOTOJOURNALISM (1 + 6) 3 credits
Techniques and principles of news, feature and public relations photography.

321 WRITING NEWS FOR BROADCAST (1 + 4) 3 credits
Study and practice of writing news for broadcast. Techniques of writing to picture and sound. History of American broadcast journalism. Prerequisite: JOUR 203.

323 BROADCAST NEWS WRITING AND PRODUCTION (1 + 4) 3 credits
Practice in writing and production of radio and television news. Use of recorders, cameras and editing devices. Organization of radio and television stations. Ethical and legal considerations. Prerequisite: JOUR 321.

331 INTRODUCTION TO ADVERTISING (2 + 0) 2 credits
Process of creating product, service and political advertising, stressing social responsibility. Prerequisite: JOUR 203.

333 ADVERTISING MEDIA (2 + 0) 2 credits
Evaluating and selecting print space and broadcast time to meet marketing objectives. Prerequisite: JOUR 331. Corequisite: JOUR 334.

334 ADVERTISING COPYWRITING (2 + 0) 2 credits
Writing for print and broadcast. Stresses use of marketing research data. Prerequisite: JOUR 331. Corequisite: JOUR 333.

335 CORPORATE COMMUNICATIONS (3 + 0) 3 credits
Principles of successful advertising and public relations for commercial and non-profit organizations. Planning, media selection, copy writing and graphics. Social responsibilities of advertisers and agents. May not be substituted for JOUR 331, 341.

341 PUBLIC RELATIONS PRINCIPLES (2 + 0) 2 credits
Principles and techniques of public relations practice in today's society. Prerequisite: JOUR 203.

343 PUBLIC RELATIONS CASE STUDIES (2 + 0) 2 credits
Application of the principles and techniques of public relations to the solving of representative problems. Prerequisite: JOUR 341.

401, 601 MEDIA LAW (3 + 0) 3 credits
Legislation and court decisions affecting the media, with stress on First Amendment, libel and constitutional rulings.

411 NEWS EDITING (2 + 2) 3 credits
Editing copy, writing headlines and laying out pages. Prerequisite: JOUR 311.

413, 613 HISTORY AND ETHICS OF JOURNALISM (3 + 0) 3 credits
Journalism from Zenger to today. Ethical questions and problems in the media.

415, 615 COMMUNITY NEWSPAPER MANAGEMENT (2 + 0) 2 credits each
Principles of journalism peculiar to the country weekly and small city daily, especially in Nevada. Editorial, circulation and advertising management. Prerequisite: JOUR 313.

417, 617 EDITORIAL WRITING (3 + 0) 3 credits
Opinion writing: editorials and columns. Prerequisite: JOUR 203.

418, 618 MAGAZINE WRITING (1 + 3) 2 credits
Writing and marketing of articles for magazines. Analysis of general interest and specialized magazines. Maximum of 4 credits. Prerequisite: JOUR 203.

419, 619 MAGAZINE EDITING (1 + 2) 2 credits
Editing of a specialized magazine. Study of the problems involved in editing and production of a variety of magazines. Maximum of 4 credits. Prerequisite: JOUR 203.

421 RADIO NEWS REPORTING (1 + 6) 3 credits
Practice in writing, interviewing and producing stories and newscasts for radio. Comparison of styles used in various formats. Preparation and broadcasting of radio news. Prerequisite: JOUR 323.

423, 623 TELEVISION NEWS REPORTING (1 + 6) 3 credits
Practice in writing, interviewing and producing stories and newscasts for television. Preparation and broadcasting of television news. Prerequisite: JOUR 421.

424 ADVANCED NEWS PRODUCING FOR BROADCAST (1 + 6) 3 credits
Practice in formatting newscasts, including use of graphics, timing, transitions, etc. Organizational and writing skills are stressed. Prerequisite: JOUR 423.

425 PUBLIC AFFAIRS REPORTING AND PRODUCING FOR BROADCAST (1 + 6) 3 credits
Production of public affairs programs for radio and television. Includes public service programming, community ascertainment, local-angle programs, talk shows and documentaries. Prerequisite: JOUR 423.

426 BROADCAST STATION OPERATION (2 + 3) 3 credits
Survey of broadcast station personnel, station organization, broadcast sales, operation of broadcast stations, and station relations with agencies, representatives, and other businesses. Prerequisite: JOUR 423.

427, 627 DOCUMENTARY PRODUCTION FOR BROADCAST (1 + 6) 3 credits
Creation of longer stories for television. Includes production of feature stories, educational pieces and investigative reports. Equal emphasis on writing and production skills. Prerequisite: JOUR 423.

429 DIRECTING FOR TELEVISION (1 + 6) 3 credits
Television production techniques. Includes the use of television graphics, audio, timing and organizational skills. Prerequisite: JOUR 423.

431 ADVERTISING PHOTOGRAPHY AND GRAPHICS (1 + 6) 3 credits
Photography for advertisements, packaging and product labels. Prerequisite: JOUR 331.

433 ADVERTISING CASE STUDIES (1 + 6) 3 credits
Development of an advertising campaign for the approval of a client. Preparation and placing of advertisements. Prerequisite: JOUR 431.

435 RETAIL ADVERTISING (2 + 3) 3 credits
Creating advertising for retail stores, service groups and professional people. Stresses pre- and post-testing techniques. Prerequisite: JOUR 331.

441 PUBLIC RELATIONS PROBLEMS (2 + 0) 2 credits
Practical experience in solving public relations problems for nonprofit organizations in the community. Prerequisite: JOUR 341.

451, 651 MAGAZINE PUBLISHING (3 + 0) 3 credits
Creating a new magazine from marketing research through production and sale. Maximum of 6 credits. Prerequisite: JOUR 203.

483, 683 PUBLIC AFFAIRS REPORTING (2 + 2) 3 credits
Covering the three branches of government: executive, legislative and judicial. Prerequisite: JOUR 203.

487, 687 MEDIA MANAGEMENT (3 + 0) 3 credits
Training, style, goals and organization of media managers. How they balance product quality and service with commercial achievement.

490, 690 SPECIAL PROBLEMS 1 to 3 credits
Pursuit of a special interest in journalism. Prerequisite: advance approval.

493 INDEPENDENT STUDY 1 to 3 credits
Special projects in journalism. Prerequisite: advance approval.

499 PROFESSIONAL INTERNSHIP (1 + 6) 3 credits *S/U only*
Supervised on-the-job experience in newspapers, magazines, radio and television stations, advertising and public relations agencies. Prerequisite: advance approval.

701 MEDIA RESEARCH METHODS (3 + 0) 3 credits
Methods common to mass communication research including surveys, content analysis and experimental design. Use of computers in gathering and analyzing data.

703 MEDIA DYNAMICS IN SOCIETY (3 + 0) 3 credits
Examination of the structure, functions and performance of the mass media and their dynamic relationship to American society in the context of communication theory and intellectual thought.

705 MEDIA TECHNOLOGIES (3 + 0) 3 credits
Analysis of technological developments in information dissemination and their impact on public communication and media management.

707 ANALYTIC WRITING (3 + 0) 3 credits
Systematic gathering of information, including public records and data bases. Methods of analyzing complex information and placing it in context for the intended audience.

771 TECHNICAL WRITING (0 + 6) 3 credits
Principles and practices for technical writing, stressing research reports, refereed journal papers, technical manuals and news releases on scientific subjects. Planning, production and social responsibilities involved.

773 SEMINAR: ISSUES IN AMERICAN MEDIA (3 + 0) 3 credits
Historical and contemporary issues on journalism, advertising and public relations.

775 SEMINAR: LEGAL RESTRAINTS ON THE MEDIA (3 + 0) 3 credits
Analysis of laws and regulations affecting the media.

777 SEMINAR: INTERNATIONAL JOURNALISM (3 + 0) 3 credits
Comparison of journalistic practices and relationships between media and government in Europe, Asia and the Third World.

779 SEMINAR: LITERARY JOURNALISM (3 + 0) 3 credits
Includes study of the styles and approaches employed by writers of fiction who emerged from journalism careers. Book-length journalism.

790 SEMINAR 1 or 2 credits
Maximum of 6 credits.

791 SPECIAL TOPICS 1 or 2 credits
Maximum of 10 credits.

792 SPECIAL PROBLEMS 1 or 2 credits

793 INDEPENDENT STUDY 1 to 3 credits
Investigation into problems in journalism. Prerequisite: advanced approval of graduate adviser.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 PROFESSIONAL RESEARCH PROJECT 4 credits *S/U only*

798 PROJECT DEVELOPMENT 2 credits *S/U only*
Prerequisite or corequisite: JOUR 797.

Inactive Courses

211 JOURNALISM IN THE HIGH SCHOOL (2 + 0) 2 credits
428, 628 ON-THE-SCENE REPORTING FOR RADIO AND TELEVISION (1 + 2) 2 credits

JUDICIAL STUDIES (J S)

402 INTRODUCTION TO NON-LAWYER JUDICIAL STUDIES (4 + 0) 4 credits
Introduction for non-lawyer special court judges of fundamental legal principles and procedures with emphasis on criminal trial procedures; covers legal research; communication skills and a mock trial.

403 SEARCH AND SEIZURE (2 + 0) 2 credits
Comprehensive examination of exclusionary rules derived from the Fourth Amendment, current trends and future developments.

404 EVIDENCE IN SPECIAL COURTS (2 + 0) 2 credits
Court rulings on evidentiary areas: relevancy; competency and privilege; opinion and expert testimony; examination of witnesses; hearsay and constitutional limitations.

405 ALCOHOL AND DRUGS (2 + 0) 2 credits
Judicial role in cases involving alcohol and substance abuse including plea bargaining, evaluation of treatment, penalties and referrals.

406 TRAFFIC COURT PROCEEDINGS (2 + 0) 2 credits
Aspects of traffic court proceedings; calendar; adjudication; arraignments; pleas; addictive behavior; admissibility of technical evidence; sentencing and corrective penalization.

407 SMALL CLAIMS (2 + 0) 2 credits
Comprehensive examination of the role of the small claims court and the judge through the analysis of administrative, judicial and public relations problems and possible solutions.

408 SENTENCING MISDEMEANANTS (2 + 0) 2 credits
Surveys the sentencing process and judge's role regarding sentencing, probation, sentence bargaining, alternatives and sanctions in misdemeanor cases.

410 ADVANCED EVIDENCE (2 + 0) 2 credits
Intensive examination of evidence, including an understanding of legal terminology, admissibility of evidence, the ability to recognize evidentiary issues, and to rule quickly and correctly.

411 DEVELOPING A COURT INFORMATION SYSTEM (2 + 0) 2 credits
Comprehensive examination of court computer systems, security and accuracy standards, hardware and software options, case flow management, statewide systems, and information agencies with computer access.

412 DOMESTIC VIOLENCE (2 + 0) 2 credits
Explores psychological issues and law surrounding spousal abuse, child sexual molestation, and physical and emotional abuse of children, and examines child testimony and cross-examination.

415, 615 JUDICIAL WRITING *S/U only*
Examines effective examples of good legal writing; identifies underlying principles of English composition; encourages judges to adopt clear, concise style by writing and rewriting.

510 GENERAL JURISDICATION (6 + 0) 6 credits *S/U only*
Comprehensive introduction to judicial system, role of judges, recent developments (legal, managerial, technological) in trials and the judiciary as a social institution.

560 CORE COLLEGE (2 + 0) 2 credits *S/U only*
Foundation of knowledge and skills in the area of juvenile law with emphasis on decision-making, dispositional alternatives and special problems relating to children.

613 CRIMINAL EVIDENCE (2 + 0) 2 credits *S/U only*
Analyzes how rules of evidence, emphasizing federal rules, are applied to criminal trials. Provides some historical perspective starting with common law.

614 CIVIL LAW (2 + 0) 2 credits *S/U only*
Examines significant developing areas of civil litigation: professional malpractice, products liability, commercial law, class actions, civil rights and comparative negligence.

616 COURT MANAGEMENT (2 + 0) 2 credits *S/U only*
Presents and analyzes a working model for trial courts intended to provide practical managerial methods to avoid or lessen court delay.

617 CIVIL EVIDENCE (2 + 0) 2 credits *S/U only*
Identification and analysis of common evidentiary problems faced by general jurisdiction courts in civil cases.

618 DECISION-MAKING PROCESS (4 + 0) 4 credits *S/U only*
Identifies the ingredients of the decision-making process and acquaints judges with the psychological, sociological and philosophical aspects of dispute resolutions.

619 GREAT ISSUES IN LAW AS REFLECTED IN LITERATURE (2 + 0) 2 credits
Explores significant moral and legal issues in American society. Readings from literary sources, judicial opinions and scholarly treatises.

620 CONSTITUTIONAL CRIMINAL PROCEDURE (2 + 0) 2 credits *S/U only*
Analyzes trends in the criminal justice system with particular attention to Fourth, Fifth, Sixth and Fourteenth Amendment cases.

621 THE JUDGE AND THE TRIAL (2 + 0) 2 credits *S/U only*
Detailed examination and analysis of the judge's role and responsibility before, during and after trial.

622 MEDICAL EVIDENCE (2 + 2) 2 credits *S/U only*
Overview of use of medical evidence in the courtroom: nature of scientific evidence, expert testimony, pathology, toxicology, child abuse, and technological innovation.

661 FAMILY LAW AND DOMESTIC RELATIONS ISSUES (2 + 0) 2 credits *S/U only*
Examination of current issues and concerns in family law with emphasis on custody and child support decisions.

662 EVIDENTIARY PROBLEMS IN THE JUVENILE AND FAMILY COURT (2 + 0) 2 credits *S/U only*
Examination of current evidentiary issues and concerns arising in juvenile and family courts.

663 ADVANCED JUVENILE JUSTICE MANAGEMENT INSTITUTE (2 + 0) 2 credits *S/U only*
Examination of management concerns for juvenile court management including budgeting, personnel recruitment, selection and performance evaluation.

690 TOPICS IN COMPARATIVE JURISPRUDENCE (2 or 3 + 0) 2 or 3 credits *S/U only*
Historical and current perspectives on various aspects of the legal systgem including the legal profession, the court system, criminology, social services, and academic research. (a) England, (b) Scotland.

710 HISTORY AND THEORY OF JURISPRUDENCE (3 + 0) 3 credits
General aspects of law from philosophical, historical and social perspectives: jurisprudence; legal history; courts and the administration of justice; and punishment, culture and society.

715 JUSTICE, LAW AND LITERATURE (3 + 0) 3 credits
Inquiry into ethical perspectives of judicial and legal experience through study and discussion of literary primary texts, including novels, plays, poems and intellectual prose.

730 LAW AND ECONOMICS (3 + 0) 3 credits
Examines economic implications and objectives of legal institutions and legal rule making: including common law, public regulations of the market and legal procedures.

735 LAW AND THE SOCIAL AND BEHAVIORAL SCIENCES (3 + 0) 3 credits
Assesses social and historical context of law, major roles and processes in legal institutions; includes major focus on use of scientific research in actual cases.

740 MEDICAL AND LEGAL ISSUES (3 + 0) 3 credits
Analysis of selected issues, combining scientific/medical and case law perspective. Topics include medical malpractice, informed consent, parents' rights, birth, AIDS, drug addiction.

745 PUBLIC POLICY AND THE COURTS (3 + 0) 3 credits
Examines the theory and practice of American policymaking, the ediology and structure of this process, and applies this understanding to selected policy areas.

750 CRIMINOLOGY: CAUSATION, ENFORCEMENT, RESPONSIBILITY (3 + 0) 3 credits
Focuses on major issues in understanding of and policies affecting crime, its control, and the system of criminal justice, including limits of individual responsibility for crime.

755 ECONOMICS OF ENVIRONMENTAL AND NATURAL RESOURCE ISSUES IN THE COURTS (3 + 0) 3 credits
Introduction to economic concepts applied to natural and environmental resource law. Economic implications of various environmental laws. Scientific interpretation of pollution and pollution impacts.

760 LANGUAGE AND JUDICIAL PROCESS (3 + 0) 3 credits
Theories of legal language in contemporary criticism, philosophy of actions, sociology of law, psychology of discourse, and structure of English; their uses in judicial practice.

797 THESIS 1 to 6 credits

LIBRARY SCIENCE (L SC)

135 USE OF THE LIBRARY (1 + 0) 1 credit
Introduction to library search strategy; effective use of WolfPAC and card catalog; finding periodical articles through printed and computer-based indexes and abstracts; resources available through library departments and branch libraries.

303 BIBLIOGRAPHY AND GENERAL REFERENCE (3 + 0) 3 credits*
Basic reference materials, national and trade bibliography, general reference works (encyclopedias, handbooks, etc.), special bibliographies.

305 HISTORY AND ORGANIZATION OF LIBRARIES (3 + 0) 3 credits*
Evolution of libraries and description of principal fields of library service, their organization, and special problems.

309 SELECTION AND ACQUISITION OF LIBRARY MATERIALS (3 + 0) 3 credits*
Theories, principles, and practice of selecting books and other library materials with particular emphasis on public and special libraries.

381 PRACTICE AND HISTORY OF PRINTING (0 + 6) 3 credits
History of graphic communication in conjunction with actual practice of printing: typographic design, block making, typesetting, press work. (Same as ART 381.)

444 ORAL HISTORY: THEORY AND METHOD (2 + 4) 3 credits
Oral history as research method for developing primary sources in social sciences. Practice in interviewing, editing and processing oral histories. (Same as ANTH 444.)

490 SPECIAL TOPICS IN LIBRARIANSHIP 1 to 3 credits
Exploration of a particular aspect of librarianship, e.g., a special subject area, an administrative or service function, or a technical system or process. Maximum of 9 credits when content differs.

MANAGERIAL SCIENCES (MGRS)

101 INTRODUCTION TO BUSINESS (3 + 0) 3 credits
Character of enterprise in the U.S. Organization and administration, production, human resources, information for control of management decision, marketing, finance, business and society. Not open to Business Administration upper-division students.

270 PRINCIPLES OF REAL ESTATE (3 + 0) 3 credits
Economic, legal, financial, marketing, managerial and operational aspects of real estate.

*Contact director of libraries for information

UPPER-DIVISION COURSES: Business students must have satisfactorily completed the entire lower-division business core (see section on *Upper-Division Courses* in the College of Business Administration section).

310 MARKETING PRINCIPLES (3 + 0) 3 credits
Objectives and policies of marketing managers as influenced by marketing institutions, the functions performed and consumer wants and needs. Prerequisite: completion of lower-division business core.

312 CONSUMER BEHAVIOR (3 + 0) 3 credits
Nature and determinants of consumer behavior. Attention focused on the influence of socio-psychological factors (such as personality, small groups, demographic variables, social class and culture) on the formation of consumer's attributes, consumption and purchasing behavior. Prerequisite: MGRS 310.

314 MARKET STRUCTURE AND CHANNELS (3 + 0) 3 credits
Theory, principles and channel implications of wholesale and retail distribution; factors affecting channels; physical distribution. Prerequisite: MGRS 310.

316 BUSINESS MARKETING MANAGEMENT (3 + 0) 3 credits
Applications of marketing concepts to problems in planning industrial marketing strategy, structuring industrial buyer behavior, managing the marketing mix and negotiating trade relationships from a management perspective. Prerequisite: MGRS 310.

323 ORGANIZATION AND INTERPERSONAL BEHAVIOR (3 + 0) 3 credits
Analysis of the internal organization structure and of executive roles and functions in the business enterprise and other goal-directed institutions. Theory and design of organizational structure, impact of work-flow plans, leadership patterns and control systems upon human behavior. Prerequisite: completion of lower-division business core.

325 LEGAL ENVIRONMENT (3 + 0) 3 credits
Nature and function of law; contracts and private property as basic concepts in free enterprise; the legal system and evolution of legal attitudes. Prerequisite: completion of lower-division business core.

345 PURCHASING MANAGEMENT (3 + 0) 3 credits
Purchasing organization and practice of the industrial enterprise. Includes securing the proper material at the proper time, place, price and quantity.

351 TRANSPORTATION (3 + 0) 3 credits
Development of various means of transportation and accompanying regulations; rate, traffic, service and coordination problems of our transportation system. Prerequisite: MGRS 373.

352 OPERATIONS MANAGEMENT (3 + 0) 3 credits
Quantitative methods and models for decision making. Topics include linear programming, plant layout, quality control, line balancing, inventory models, and simulation. Prerequisite: lower-division business core.

353 RISK AND INSURANCE (3 + 0) 3 credits
Theory of risk, introduction to risk management, principles and legal aspects of insurance, survey of property and casualty insurance. Prerequisite: EC 101 or equivalent. Meets Nevada Insurance Division regulations.

362 PRODUCTION MANAGEMENT (3 + 0) 3 credits
Application to manufacturing and service organizations. Includes capital investment analysis; capacity planning; plant layout; production processes; research and development; cost calculations; production inventory and quality control and simulation. Prerequisite: statistics, MGRS 352.

365 CORPORATION FINANCE (3 + 0) 3 credits
Financial management of the business enterprise. Topics include financial analysis, planning and forecasting, management of working capital, decisions involving long-term assets, sources and forms of long-term capital, financial structure and the cost of capital. Prerequisite: completion of lower-division business core.

367 PERSONNEL ADMINISTRATION (3 + 0) 3 credits
Management of human resource as a primary function of all managers. Emphasis on personnel processes significant in improving labor utilization and productivity. Review of pertinent legislation dealing with manpower and labor-management relations. Not applicable toward an advanced degree in managerial sciences.

370 INVESTMENTS (3 + 0) 3 credits
Analysis of investment risks, media and investment portfolios with relation to requirements and policies of individual investors. Prerequisite: MGRS 365.

373 BUSINESS LAW I (3 + 0) 3 credits
Nature, origin and philosophy of law and procedures. Law of contracts, agency, partnerships and sales. Prerequisite: completion of lower-division business core.

374 BUSINESS LAW II (3 + 0) 3 credits
Continuation of MGRS 373. Law of corporations, secured transactions, property, negotiable instruments, insurance and bankruptcy. Prerequisite: MGRS 373.

401, 601 LIFE INSURANCE (3 + 0) 3 credits
Analysis and treatment of personal risks, use of life, health and annuity contracts in realm of estate planning, actuarial concepts, purchase decisions, regulatory problems. Prerequisite: MGRS 353.

402, 602 PROPERTY LIABILITY INSURANCE (3 + 0) 3 credits
Essentials of risk management, principles of property and liability insurance contracts pertaining to pure risks of the firm. Some emphasis on managerial problems faced by insurance companies within socio-economic and legal constraints. Prerequisite: MGRS 353.

403, 603 RISK MANAGEMENT SEMINAR (3 + 0) 3 credits
Selected topics covering the management of static business risks. Emphasis on choosing among alternative risk handling techniques. Includes employee benefit programs, risk retention and financing, business continuation uses of life insurance and estate planning for the entrepreneur.

404, 604 PROBLEMS IN BUSINESS FINANCE (3 + 0) 3 credits
Case analysis and application of financial concepts to organization and operations of business enterprises. Prerequisite: MGRS 365.

415, 615 COMMERCIAL BANK MANAGEMENT (3 + 0) 3 credits
Administration and operation of commercial banks. Topics include internal organization; loan and investment administration, regulation and supervision; earnings, expense and dividend policies; capital structure and financing policies; new business development. Prerequisite: MGRS 365.

420, 620 INTERNATIONAL FINANCE (3 + 0) 3 credits
Financing international business operations and investments, financial decision making in the multinational firm, the international monetary system, balance of payments, foreign exchange rates, international financial institutions. Prerequisite: MGRS 370.

422, 622 PROMOTIONAL MANAGEMENT (3 + 0) 3 credits
Strategic communication problems faced by marketing management; allocation of resources to promotional mix, evaluation of communication effectiveness, and coordination with other marketing strategies. Emphasizes relevancy of consumer motivation and behavior to promotional strategies. Prerequisite: MGRS 310.

424, 624 SALES AND NEGOTIATION MANAGEMENT (3 + 0) 3 credits
Concepts and techniques used in the analysis, planning, implementation, and control of modern sales and negotiation strategies. Prerequisite: MGRS 310 or B A 760.

452, 652 COMPARATIVE MANAGEMENT (3 + 0) 3 credits
Analysis of international similarities and differences in managerial functions, processes and effectiveness and consideration of the changes evolving in management systems in various countries. Prerequisite: MGRS 323, 352.

453, 653 ORGANIZATIONAL CHANGE AND DEVELOPMENT (3 + 0) 3 credits
Analysis of strategies to bring about change in organizational structure; tasks; individual behavior; interpersonal relationships; and relationships of groups. Prerequisite: MGRS 323.

455, 655 LOGISTICS MANAGEMENT (3 + 0) 3 credits
Physical supply and physical distribution systems, optimum location of storage and transfer sites, material handling and selection of transportation media. Prequisite: MGRS 310, 351, 352.

457 RESEARCH METHODS FOR LOGISTICS (3 + 0) 3 credits
Data needs identification, data collection issues under regulated/unregulated regimes, statistical and quantitative methods of analysis, research evaluation and practical issues. Prerequisite: EC 262, MGRS 351, 352.

458 INTERNATIONAL LOGISTICS (3 + 0) 3 credits
Design and operation of international logistics systems. Export-import issues, multi-national sourcing and distribution strategies, channel management, and comparative transportation systems and policies. Prerequisite: MGRS 351, 455.

459, 659 ANALYSIS AND DESIGN OF LOGISTICAL SYSTEMS (3 + 0) 3 credits
The modeling process, forecasting, data analysis, inventory analysis, location analysis, vehicle scheduling, use of specially designed software packages. Prerequisite: MGRS 455.

460, 660 MANAGEMENT: THEORY AND PRACTICE (3 + 0) 3 credits
Analysis of the nature and problems of and approaches to management planning, organizing, decision making and controlling through a study of recent relevant literature and selected cases. Prerequisite: MGRS 323.

461, 661 ADVANCED OPERATIONS MANAGEMENT (3 + 0) 3 credits
Theory and application to business systems of advanced quantitative decision models such as: linear programming and sensitivity analysis, network models and algorithms, dynamic programming, probabilistic-dynamic programming, integer programming, and computer simulation. Prerequisite: MGRS 352, 362.

462, 662 BUSINESS AND SOCIETY (3 + 0) 3 credits
Social responsibilities of business executives; ethics; government relations; literature; role of the enterprise as subsystem of societal system; responsibilities to owners, work force, customers, suppliers and government.

467 EMPLOYEE STAFFING AND SELECTION (3 + 0) 3 credits.
Focus on issues associated with the external and internal staffing process. Emphasis on (a) legal issues, (b) methods of selection, (c) economic impact. Prerequisite: MGRS 323, 367.

468 COMPENSATION MANAGEMENT (3 + 0) 3 credits
Survey of theories underlying compensation and reward systems in organizations. Emphasis on the analysis and evaluation of jobs, criteria and procedures for determining wage levels. Prerequisite: MGRS 323, 367.

470, 670 INTERNATIONAL MARKETING (3 + 0) 3 credits
Marketing structure and policies employed in export and import trade. Consideration of legal, cultural and economic factors in marketing abroad. Prerequisite: MGRS 310.

471, 671 MARKETING RESEARCH (3 + 0) 3 credits
Basic research techniques, survey techniques, sources of marketing information, criteria for evaluation of research studies, and practical experience in making marketing research studies. Prerequisite: MGRS 310, EC 262.

472 RETAIL MANAGEMENT (3 + 0) 3 credits
Basic concepts, methods, and applications of modern retail practice; topics include trade area analysis, layout design, merchandise management, price, promotion, planning, etc. Prerequisite: MGRS 310, 323, 352, 365.

481, 681 INTERCOLLEGIATE BUSINESS GAMES (2 + 3) 3 credits
Business decision making in a competitive environment involving policy making; economic, sales and production forecasting; financial analysis; production scheduling; capital budgeting; marketing; resesarch and development planning; pricing; advertising and inventory management. Prerequisite: MGRS 365.

482 INTERNSHIP (1 + 3 to 6) 2 to 3 credits *S/U only*
An internship with local firms, providing exposure to the real world environment in student's major.

487 ENTREPRENEURSHIP (3 + 0) 3 credits
How to pursue entrepreneurial opportunities and mechanics of opening a business. Prerequisite: ACC 309 or 313; MGRS 316.

488 STRATEGIC MANAGEMENT AND POLICY (3 + 0) 3 credits
Emphasis on the application of knowledge from all functional areas of business to organizational problems and the formulation and implementation of organizational strategies. Prerequisite: MGRS 310, 323, 352, 365.

489, 689 MARKETING MANAGEMENT (3 + 0) 3 credits
Application of marketing principles and methods to case problems in merchandising, distribution channels, brand policy, planning and administering sales programs and the like. Prerequisite: MGRS 310.

490 INDEPENDENT STUDY 1 to 3 credits
Study and resesarch in business administration. Maximum of 6 credits.

491, 691 ADVANCED SEMINAR IN MANAGEMENT (3 + 0) 3 credits
Advanced study of selected topics in management. Maximum of 6 credits.

492, 692 ADVANCED SEMINAR IN MARKETING (3 + 0) 3 credits
Advanced study of selected topics in marketing. Maximum of 6 credits.

493, 693 ADVANCED SEMINAR IN FINANCE (3 + 0) 3 credits
Advanced study of selected topics in finance. Maximum of 6 credits.

494 ADVANCED SEMINAR IN LOGISTICS (3 + 0) 3 credits
Advanced study of selected topics. Maximum of 6 credits.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

Inactive Courses

301 INSTITUTIONAL MANAGEMENT I (3 + 0) 3 credits
302 INSTITUTIONAL MANAGEMENT II (3 + 0) 3 credits
375 LAND RESOURCES: VALUE AND ALLOCATION (3 + 0) 3 credits

378 REAL ESTATE LAW (3 + 0) 3 credits
387 WAGE AND SALARY ADMINISTRATION (3 + 0) 3 credits
427, 627 PROBLEMS IN LABOR RELATIONS AND PERSONNEL ADMINISTRATION (3 + 0) 3 credits
430, 630 REAL ESTATE EVALUATION (3 + 0) 3 credits
431, 631 REAL ESTATE APPRAISAL PROBLEMS (3 + 0) 3 credits
477, 677 SEMINAR IN INSTITUTIONAL MANAGEMENT (3 + 0) 3 credits
604 PROBLEMS IN BUSINESS FINANCE (3 + 0) 3 credits

MATHEMATICS (MATH)

Each student is required to present to the Mathematics Department an ACT or SAT standard mathematics score and a copy of the admission certificate prior to the first registration. Students with previous college mathematics experience should contact the department chair for proper placement before enrolling.

101 INTERMEDIATE ALGEBRA (3 + 0) 3 credits
Basic properties of the real numbers; standard algebraic techniques, including exponents, factoring, fractions, radicals; problem solving; linear and quadratic equations; the concept of graphing. Prerequisite: one unit of high school algebra and one unit of high school geometry.[1]

105 FUNDAMENTALS OF COLLEGE MATHEMATICS (3 + 0) 3 credits
Equations and inequalities; relations and functions; linear, quadratic, polynomial, exponential, and logarithmic functions; circles, lines, and parabolas; right-triangle trigonometry; finite probability measures; some statistical concepts. Prerequisite: satisfactory score on qualifying examination or MATH 101.[2]

115 ALGEBRA AND TRIGONOMETRY (5 + 0) 5 credits
Equations, relations, functions, graphing; polynomial, rational, exponential, logarithmic, and circular functions with applications; coordinate geometry of lines and conics; analytic trigonometry; matrices, determinants; binomial theorem. Prerequisite: satisfactory score on qualifying examination or MATH 101.[2]

173 ELEMENTARY SCHOOL MATHEMATICS I (3 + 0) 3 credits
Mathematics needed by those teaching new-content mathematics courses at the elementary school level with emphasis on the structure of the real number system and its subsystems. Designed for students seeking a teaching certificate in elementary education. Open to others only with approval of department chair.[1]

174 ELEMENTARY SCHOOL MATHEMATICS II (3 + 0) 3 credits
Continuation of MATH 173. Prerequisite: MATH 173.[1]

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.

210 MATHEMATICS OF FINANCE (3 + 0) 3 credits
Interest, annuities, sinking funds, depreciation and amortization. Prerequisite: MATH 101 or 1½ units of high school algebra. Offered through UNR correspondence study only.[1]

211 ELEMENTS OF CALCULUS I (3 + 0) 3 credits
Fundamental ideas of analytic geometry and calculus, rates, extrema and the applications thereof. Prerequisite: satisfactory score on qualifying examination or MATH 115.[2]

213 CALCULUS FOR SCIENCE I (3 + 0) 3 credits
Calculus in the plane with emphasis on applications in the sciences, including curve sketching, optimization, related rates, and vectors in the plane. Prerequisite: satisfactory score on qualifying examination or MATH 115.[2]

214 CALCULUS FOR SCIENCE II (3 + 0) 3 credits
Multivariable calculus, including partial differentiation, multiple integration, calculus of vector-valued functions, optimization of functions of several variables and Lagrange multipliers. Prerequisite: one semester of calculus.

215 CALCULUS I (4 + 0) 4 credits
Fundamental concepts of analytic geometry and calculus; functions, graphs, limits, derivatives and integrals. Prerequisite: satisfactory score on qualifying examination or MATH 115. A student whose current progress is unsatisfactory in the opinion of the instructor may be required to attend supervised study sessions.[2]

216 CALCULUS II (4 + 0) 4 credits
Continuation of MATH 215; transcendental functions, methods of integration, conics, vectors. Prerequisite: MATH 215. A student whose current progress is unsatisfactory in the opinion of the instructor may be required to attend supervised study sessions.

217 CALCULUS III (4 + 0) 4 credits
Continuation of MATH 216; infinite series, three-dimensional calculus. Prerequisite: MATH 216.

284 APPLICATION COMPUTER LANGUAGES (1 + 0) 1 credit
Development of programming skills and training in selected applications in a single programming language chosen from C, FORTRAN, APL, Ada. Prerequisite: C S 283 or equivalent. May be repeated for 1 credit in each language. (Same as C S 284.)

301 STUDIES IN THE HISTORY OF MATHEMATICS (2 + 0) 2 credits
Survey of mathematical developments from ancient times to present. Emphasis on originators, origins and consequences of significant mathematical contributions.

307 SYMBOLIC LOGIC (3 + 0) 3 credits
(See PHIL 326 for description.)

308 INTRODUCTION TO FOUNDATIONS OF MATHEMATICS (3 + 0) 3 credits
Primitive terms, concepts, axioms, axiomatic method, proof, dependence, completeness, consistency, validity, models; set theory, cardinality, real numbers and other structures; formalism, intuitionism, cultural and scientific settings. Prerequisite: MATH 217, for those majoring in the physical sciences. (Same as PHIL 308.)

311 MULTIVARIABLE CALCULUS (3 + 0) 3 credits
Mappings between Euclidean spaces, their differentials and partial derivatives; the chain rule; extremalization computations; line and surface integrals; the theorems of Gauss, Green and Stokes. Prerequisite: MATH 217, 330.

320 DIFFERENTIAL EQUATIONS (2 + 0) 2 credits
Scalar-valued differential equations; linear theory, differential operators, inhomogenous constant coefficient linear initial-value problems. Green's functions, Wronskians; non-linear first order initial-value problems. Prerequisite: MATH 217.

321 DIFFERENTIAL AND DIFFERENCE EQUATIONS I (3 + 0) 3 credits
Vector-valued linear differential equations, power series solutions, asymptotic behavior; the Legendre, Euler, and Bessel equations; Sturm-Liouville eigenvalue problems; autonomous systems, stability; finite difference methods; introduction to second order partial differential equation boundary-value problems. Prerequisite: MATH 320.

330 LINEAR ALGEBRA I (3 + 0) 3 credits
Systems of linear equations; matrix algebra; vector spaces: linear independence, bases, dimension, vector subspace configuration; linear maps, their matrix representations and structure theorems. Prerequisite: MATH 216.

331 GROUPS, RINGS AND FIELDS (3 + 0) 3 credits
Elementary structure of groups, rings and fields, including homomorphisms, automorphisms, normal subgroups, ideals and Galois theory. Prerequisite: MATH 217.

341 METRIC TOPOLOGY (3 + 0) 3 credits
Topological structures induced by metrics; topological concepts versus metric concepts; continuity, compactness, local compactness, connectedness; boundedness, total boundedness, completeness, uniform continuity; separation and countability conditions. Prerequisite: MATH 217.

352 PROBABILITY AND STATISTICS (3 + 0) 3 credits
Probability experiments; sample spaces, discrete and continuous random variables and distributions; mathematical expectation, central limit theorem; hypothesis testing and linear regression. Prerequisite: two semesters of calculus.

371 CONCEPTS OF SCHOOL MATHEMATICS I (3 + 0) 3 credits
Theoretical development of the ideas underlying school mathematics. Emphasis on sets, algebra and ordering. Designed for students seeking a teaching certificate. Open to others only with the approval of department chairman.

372 CONCEPTS OF SCHOOL MATHEMATICS II (3 + 0) 3 credits
Continuation of MATH 371. Emphasis on geometry mensuration and coordinate systems. Prerequisite: MATH 371.

373 THEORY OF POSITIVE INTEGERS (3 + 0) 3 credits
Mathematical logic, quantifiers, induction, axiomatic development of the theory of positive integers; fundamental theorem of arithmetic. Emphasis is on problem solving and theorem proving. Prerequisite: MATH 215 or consent of instructor.

[1] This course does not satisfy the university core mathematics requirement.
[2] This course satisfies the university core mathematics requirement.

381 DISCRETE MATHEMATICS (3 + 0) 3 credits
Quantifiers and logical operators; sets, functions, binary relations, digraphs, and trees; inductive definitions; counting techniques, recurrence systems; analysis of algorithms, searching and sorting algorithms. Prerequisite: C S 183, MATH 215.

400, 600 INDEPENDENT STUDY 1 to 3 credits
Individual study conducted under the direction of a faculty member. Limited to 6 credits except under special circumstances.

401, 601 SET THEORY (3 + 0) 3 credits
Formalism, inference, axiomatic set theory, unicity, pairs, relations, functions, ordinals, recursive definition, maximality, well ordering, choice, regularity, equinumerosity, cardinal arithmetic.

410, 610 COMPLEX ANALYSIS (3 + 0) 3 credits
Complex numbers, analytic and harmonic functions. Cauchy-Reimann equations, complex integration, the Cauchy integral formula, elementary conformal mappings. Laurent series, calculus of residues. Prerequisite: MATH 311.

411, 611 REAL ANALYSIS (3 + 0) 3 credits
Continuity, monotonicity, differentiability; uniform convergence and continuity and differentiability; Stone-Wierstrass Theorem; multivariable functions, linear transformations, differentiation, inverse and implicit functions, Jacobians and change of variable; Lebesgue measure and integration. Prerequisite: MATH 311, 341, 330.

412, 612 FUNCTIONAL ANALYSIS (3 + 0) 3 credits
Normed vector spaces, Banach and Hilbert spaces, linear functionals and operators, the Hahn-Banach, closed graph and uniform boundedness theorems with applications, dual spaces, self adjoint operators, compact operators. Prerequisite: MATH 311, 341, 330.

419, 619 TOPICS IN ANALYSIS (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as differential forms, analytic functions, distribution theory, measure and integration, constructive analysis. Maximum of 6 credits.

420, 620 MATHEMATICAL MODELING (3 + 0) 3 credits
Formulation, analysis and critique of methods of mathematical modeling; selected applications in physics, biology, economics, political science and other fields. Prerequisite: MATH 352 and 217 or 214; or MATH 352 and co-registration in MATH 217 or 214.

22, 622 OPTIMAL ANALYSIS (3 + 0) 3 credits
Analysis of extrema of real-valued functions and functionals with applications. Introduction to calculus of variations and optimal control. Prerequisite: MATH 311, 320.

423, 623 DIFFERENTIAL AND DIFFERENCE EQUATIONS II (3 + 0) 3 credits
Partial differential equations; first order equations, initial and mixed boundary-value problems for the second order Laplace, heat and wave equations; finite difference approximation. Prerequisite: MATH 320.

429, 629 TOPICS IN APPLIED ANALYSIS (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as: integral transforms, approximation of functions, nonlinear mathematics, stability theory, matrix exponentials. Maximum of 6 credits.

430, 630 LINEAR ALGEBRA II (3 + 0) 3 credits
Vector spaces; duality, direct sums; linear maps: eigenvalues, eigenvectors, rational and Jordan forms; bilinear maps, quadratic forms; inner product spaces: symmetric, skewsymmetric, orthogonal maps, spectral theorem. Prerequisite: MATH 330.

435, 635 COMBINATORICS (3 + 0) 3 credits
Graph theory and enumeration. Searching, arrangement, selection, and network flow problems. Emphasis on algorithms useful for computers. Prerequisite: MATH 330.

439, 639 TOPICS IN ALGEBRA (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as Galois theory, number theory, topological groups, combinatorial analysis, theory of graphs. Maximum of 6 credits.

441, 641 TOPOLOGY (3 + 0) 3 credits
Concepts of continuity, compactness, local compactness and connectedness in a general topological setting; separation and countability conditions; product and quotient topologies; homotopy, the fundamental group and covering spaces. Prerequisite: MATH 341.

442, 642 DIFFERENTIAL GEOMETRY (3 + 0) 3 credits
Geometry of curves and surfaces in space; Frenet's formulas; Cartan's frame fields, Gaussian curvature; intrinsic geometry of surface; congruence of surfaces; the Gauss-Bonnet theorem. Prerequisite: MATH 311.

443, 643 DIFFERENTIAL GEOMETRY AND RELATIVITY I (3 + 0) 3 credits
Manifolds, the tangent bundle, differential forms, exterior differentiation, Lie differentiation, Koszul connections, curvature, torsion, Cartan's structural equations, integration of differential forms. Prerequisite: MATH 311 or equivalent.

444, 644 DIFFERENTIAL GEOMETRY AND RELATIVITY II (3 + 0) 3 credits
Spacetimes, the Fermi-Walker connection, reference frames, particles and particle flows, electromagnetic fields, stress-energy tensors, matter models, black holes, gravitational waves, cosmological models. Prerequisite: MATH 443.

445, 645 INTRODUCTION TO RELATIVITY THEORY (3 + 0) 3 credits
Special relativity, redshift, Thomas precession; tensor fields, covariant differentiation, geodesics, curvature; Einstein field equations, a simple cosmological model, Schwarzschild spacetime, precession, Kruscal space-time, blackholes. Prerequisite: MATH 311 or equivalent.

449, 649 TOPICS IN GEOMETRY AND TOPOLOGY (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as differential topology, algebraic topology, convexity, topological vector spaces. Mathematical structures of special relativity. Maximum of 6 credits.

451, 651 PROBABILITY THEORY (3 + 0) 3 credits
Probability space axioms; random variables, expectation, univariant and multivariant distribution theory; sequences of random variables; Tchebychev inequality, law of large numbers, and central limit theorem. Prerequisite: MATH 217, 352.

452, 652 STATISTICS I (3 + 0) 3 credits
Hypothesis testing: power, confidence intervals; estimation: choice of estimators, desired properties of estimators; linear regression: Gauss-Markov theorems, design of experiments, ANOVA. Prerequisite: MATH 352.

453, 653 STATISTICS II (3 + 0) 3 credits
Multivariant normal distributions; non-parametric methods in statistics: test procedures, estimation, rank correlation; sequential analysis; central limit theorem and its applications. Prerequisite: MATH 452.

454, 654 INTRODUCTION TO STOCHASTIC PROCESSES (3 + 0) 3 credits
Discrete time stochastic processes: random walks, recurrent events, Markov chains, branching processes; continuous time processes: linear and nonlinear birth-death processes and diffusions; renewal theory. Prerequisite: MATH 451.

469, 669 MATHEMATICAL TOPICS IN THE MANAGEMENT SCIENCES (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as linear and integer programming, nonlinear programming, game theory and optimization problems. Maximum of 6 credits.

474, 674 SETS AND NUMBERS (3 + 0) 3 credits
Axiomatic theory of sets, relations and functions; natural numbers, integers, rationals and reals constructed from sets; least upper-bound principle and its consequences; complex numbers. Prerequisite: MATH 373.

475, 675 EUCLIDEAN AND NON-EUCLIDEAN GEOMETRY (3 + 0) 3 credits
Axiom systems, models, independence, consistency; incidence, distance, betweenness, congruence, convexity; inequalities, parallels, perpendiculars; the Klein model; Saccheri quadrilaterals, limit triangles, the non-Euclidean geometry of Bolyai-Lobatchevsky. Prerequisite: MATH 373.

480, 680 COMPUTER APPLICATIONS IN EDUCATION (1 + 0 per credit) 1 to 3 credits
Microcomputer technology, computer science instruction and computer based instruction in the classroom. Evaluation of software packages. Practical experience with microcomputer systems. Not applicable for mathematics majors. Prerequisite: MATH 173 or 174. Does not satisfy the university core mathematics requirement.

481, 681 INTRODUCTION TO NONPROCEDURAL PROGRAMMING TECHNIQUES (3 + 0) 3 credits
(a) Functional programming; application and implementation, (b) LISP processing and macro techniques, (c) logic programming; patterns and styles; (d) object oriented descriptive programming. Prerequisite: C S 386. Maximum of 12 credits -- 3 in each topic.

483, 683 NUMERICAL METHODS I (3 + 0) 3 credits
Numerical solution of linear systems, including linear programming; iterative solutions of non-linear equations; computation of eigenvalues and eigenvectors, matrix diagonalization. Prerequisite: MATH 330 or equivalent. (Same as C S 483, 683.)

484, 684 NUMERICAL METHODS II (3 + 0) 3 credits
Numerical differentiation and integration; numerical solution of ordinary differential equations, two-point boundary value problems; difference methods for partial differential equations. Prerequisite: MATH 320 or equivalent.

487, 687 COMPUTER DATABASE MANAGEMENT SYSTEMS (3 + 0) 3 credits
(See C S 487, 687 for description.)

488, 688 TOPICS IN ARTIFICIAL INTELLIGENCE (3 + 0) 3 credits
(See C S 488, 688 for description.)

489, 689 TOPICS IN COMPUTER SCIENCE (1 + 0 per credit) 1 to 3 credits
(See C S 489, 689 for description.)

659 TOPICS IN PROBABILITY AND STATISTICS (1 + 0 per credit) 1 to 3 credits
Variable content chosen from among such topics as time series analysis, analysis of variance and design of experiments, and quality control and reliability. Maximum of 9 credits.

701-702 NUMERICAL ANALYSIS AND APPROXIMATION (3 + 0) 3 credits each
Norms of vectors and matrices, computation of eigenvalues and eigenvectors, matrix transformations, Weierstrass' approximation theorem, Chebyshev polynomials, best and uniform approximation, splines, approximation in abstract spaces.

703 COMPUTABILITY AND FORMAL LANGUAGES (3 + 0) 3 credits
(See C S 703 for description.)

704 NONPROCEDURAL PROBLEM SOLVING TECHNIQUES (3 + 0) 3 credits
(See C S 704 for description.)

705 COMPILERS AND TRANSLATORS (3 + 0) 3 credits
(See C S 705 for description.)

706 ADVANCED OPERATING SYSTEMS CONCEPTS (3 + 0) 3 credits
(See C S 706 for description.)

709 TOPICS IN ADVANCED COMPUTER SCIENCE (3 + 0) 3 credits
(See C S 709 for description.)

713-714 ABSTRACT AND REAL ANALYSIS (3 + 0) 3 credits each
Metric spaces, abstract measures, measurable functions, integration, product measures, Fubini Theorem, topological measures, Haar measure, differentiation. Radon-Nikodym Theorem, linear spaces, Hahn-Banach Theorem, Riesz Representation.

715-716 COMPLEX FUNCTION THEORY (3 + 0) 3 credits each
Analytic functions, conformal mappings, Cauchy's theorem, power series, Laurent series, the Riemann mapping theorem, harmonic functions, subharmonic functions, canonical mappings of multiply connected regions, analytical continuation.

731-732 MODERN ALGEBRA (3 + 0) 3 credits each
Groups, fields, linear dependence, linear transformations, Galois theory.

741-742 TOPOLOGY (3 + 0) 3 credits each
Topological structures, uniform spaces, metric spaces, compact and locally compact spaces, connectivity, function spaces, topological algebra, elementary homological algebra, singular homology theory, cell complexes, homotopy groups.

751 MATHEMATICAL METHODS IN OPERATIONS RESEARCH I (3 + 0) 3 credits
Application of pertinent mathematical theories to deterministic models, including linear, nonlinear, dynamic and integer programming; duality theory; network analysis. Prerequisite: MATH 311, 330.

752 MATHEMATICAL METHODS IN OPERATIONS RESEARCH II (3 + 0) 3 credits
Application of pertinent mathematical theories to probabilistic models, including queueing theory; inventory theory; reliability; decision analysis; simulation. Prerequisite: MATH 311, 330, 352.

753 STOCHASTIC MODELS (3 + 0) 3 credits
Stochastic models of system noise, Brownian motion, parameter estimation and time series. Applications and mathematical characterizations of Gaussian, Poisson, Markov and stationary random processes. Prerequisite: MATH 311, 330, 352.

773 TOPICS IN ALGEBRA (3 + 0) 3 credits
Variable content chosen from such topics as theory of equations, number theory and groups and permutations. Prerequisite: MATH 217, 330. Maximum of 9 credits.

774 TOPICS IN GEOMETRY AND ANALYSIS (3 + 0) 3 credits
Variable content chosen from such topics as plane algebraic curves, theory of surfaces pseudo-Euclidean spaces. Prerequisite: MATH 217, 330. Maximum of 9 credits.

775 TOPICS IN PROBABILITY AND STATISTICS (3 + 0) 3 credits
Variable content chosen from among such topics as Markov Chains, multivariate statistics and Brownian motion. Prerequisite: MATH 217, 330, 352. Maximum of 9 credits.

780 TOPICS IN ADVANCED MATHEMATICS 1 to 3 credits
Variable content chosen from such topics as mathematical methods in applied science, manifold theory, functional analysis or geometric methods in ODE theory. Maximum of 9 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Individual study conducted under the direction of a faculty member. Limited to 6 credits except under special circumstances.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

Inactive Courses

102 PLANE TRIGONOMETRY (2 + 0) 2 credits
110 COLLEGE ALGEBRA (3 + 0) 3 credits
140 ANALYTIC GEOMETRY (3 + 0) 3 credits.
163 INTRODUCTION TO PROBABILITY (2 + 0) 2 credits

MECHANICAL ENGINEERING (M E)

150 INTRODUCTION TO MECHANICAL DESIGN (2 + 3) 3 credits
Introduces the design process including initial conceptualization (sketching), detailed drawings (drafting), and prototype fabrication (machine shop). Discussion of descriptive geometry; graph and chart preparation; design projects.

198, 298, 398, 498 COOPERATIVE TRAINING REPORT (1 + 0) 1 credit each
Preparation of written reports based on cooperative program assignments. Required of all students in cooperative programs during the summer or other semesters when on work assignments with cooperative program employers.

201 COMPUTER PROGRAMMING (2 + 3) 3 credits
Programming in FORTRAN illustrated by topics in computational mathematics. No previous knowledge of computer programming is assumed. Corequisite: MATH 217 or equivalent.

241 STATICS (3 + 0) 3 credits
(See C E 241 for description.)

242 DYNAMICS (3 + 0) 3 credits
Kinematics and kinetics of particles and rigid bodies in two and three dimensions; relative motion; work and energy; impulse and momentum. Prerequisite: M E 241. Corequisite: MATH 217.

250 INTRODUCTION TO COMPUTER AIDED DESIGN (2 + 3) 3 credits
Design and analysis of machine components using AUTOCAD and CADKEY on the IBM PC System 2. Introduction to dynamic simulation and graphic display. Prerequisite: M E 150.

299 DIFFERENTIAL EQUATIONS (3 + 0) 3 credits
Methods of solving ordinary differential equations with application to physical systems. Prerequisite: MATH 217. Required for mechanical engineering majors.

300 INTRODUCTION TO ENGINEERING MATHEMATICS (2 + 0) 2 credits
Methods of solving ordinary differential equations are investigated and applied. Both mathematical formulation of physical problems and solution of the resulting differential equations are stressed. Prerequisite: MATH 217. Not open to mechanical engineering majors.

310 SYSTEM ANALYSIS AND DESIGN (4 + 0) 4 credits
Mathematical modeling and response analysis of linear mechanical, electrical, hydraulic and pneumatic systems. Linearization of non-linear systems. Introduction to experimental modeling. Control system analysis. Prerequisite: E E 201, M E 367, 299, 402.

343 DYNAMICS OF MACHINERY (2 + 0) 2 credits
Dynamical behavior of machine elements and mechanisms, inertia forces on linkages, two degrees of freedom vibrations, gyroscopic effects, selected special problems. Prerequisite: M E 242.

351 MECHANICAL DESIGN (3 + 3) 4 credits
Design of machine elements, emphasizing analysis using computer languages such as FORTRAN and design using interactive computer aided design facilities. Prerequisite: M E 250, C E 372.

353 MANUFACTURING PROCESSES (2 + 3) 3 credits
Metal casting, metal forming, rolling, forging, extrusion, drawing, sheet metal forming, powder metallurgy. Forming and shaping of plastics, composite materials, ceramics and glass, material. High Tc superconductor processing.

367 ELEMENTARY FLUID MECHANICS (3 + 0) 3 credits
Introduction to hydrostatics, conservation laws, dimensional analysis and boundary-layer theory. Corequisite: M E 242, 299 or equivalent.

368 INTERMEDIATE FLUID MECHANICS (3 + 0) 3 credits
Introductory treatment of potential theory, turbulence, boundary-layer theory, two-phase flow and numerical methods. Prerequisite: M E 367 or equivalent.

371 THERMODYNAMICS I (3 + 0) 3 credits
Principles of engineering thermodynamics. A study of the first and second laws, entropy, ideal and real gases and second-law analysis of engineering systems. Prerequisite: completion of physics requirements.

372 THERMODYNAMICS II (3 + 0) 3 credits
Continuation of M E 371 covering power and refrigeration cycles, gas mixtures, thermodynamics relations, combustion and thermodynamics of high-speed flow. Prerequisite: M E 371.

377 INTRODUCTION TO SOLAR ENERGY (2 + 0) 2 credits
History of solar utilization. Characteristics of solar radiation. Design of structures to use solar energy. Principles of conversion of solar energy to other forms of energy. Prerequisite: PHYS 201.

391 INSTRUMENTATION (2 + 3) 3 credits
Theory, design and use of mechanical and electrical system for static and dynamic measurements. Prerequisite: E E 200, 201; M E 242, 299, 367.

402, 602 NUMERICAL METHODS IN ENGINEERING (3 + 0) 3 credits
Numerical methods are introduced and applied to mechanical engineering problems. Requires knowledge of FORTRAN. Prerequisite: M E 299.

403, 603 PARTIAL DIFFERENTIAL EQUATIONS IN ENGINEERING (3 + 0) 3 credits
Techniques of solving and application of partial differential equations are investigated. Fourier Analysis, Bessel, Legendre and Mathieu functions are introduced. Prerequisite: M E 299.

410, 610 INTRODUCTION TO SYSTEM CONTROL (3 + 0) 3 credits
Mathematics of linear systems and their control. Prerequisite: M E 310.

411, 611 INTRODUCTION TO ROBOTICS (3 + 0) 3 credits
Included topics are forward and inverse kinematics, motion kinematics, force/torque relations, trajectory planning, dynamics and control of robots. Prerequisite: M E 242.

430 MATERIALS (3 + 0) 3 credits
Properties of materials as they affect selection and design. Prerequisite: METE 350.

440, 640 INTERMEDIATE DYNAMICS (3 + 0) 3 credits
Kinematics and dynamics of rigid bodies in space. General theory of rotating coordinate frames, Euler's angles, Euler's equations of motion, angular momentum, work-energy principles. Prerequisite: M E 242.

444, 644 SPACE MECHANICS (3 + 0) 3 credits
Reference frames, Euler Angles, Orbital mechanics, mechanics of powered flight, satellite dynamics and lunar trajectories. Prerequisite: M E 201, 242.

445, 645 ADVANCED MECHANICS (3 + 0) 3 credits
Unsymmetrical bending, shear center, strain energy, complementary energy with applications, continuous elastically supported beams, beam columns, buckling of bars, electric resistance strain gauging. Prerequisite: C E 372.

446, 646 COMPOSITE MATERIALS (3 + 0) 3 credits
Stress-strain relations of a lamina; micromechanics and macromechanics of laminate; bending, buckling and vibration of laminated composite-material beams, plates and shells. Prerequisite: C E 372.

452 DESIGN SYNTHESIS (3 + 3) 4 credits
Creation and optimization of mechanical systems using Computer Aided Design (CAD) facilities. Heat transfer, fluid flow and economic aspects are included. Prerequisite: M E 451, 461.

453, 653 MECHANICAL VIBRATIONS (3 + 0) 3 credits
Theory of mechanical vibrations with applications to machinery. Includes critical speeds, torsional vibrations, isolation, damping, absorbers, uniform beams, etc. Lectures, experiments, problems. Prerequisite: M E 310.

461, 661 HEAT TRANSFER (3 + 0) 3 credits
Basic laws of heat transfer by conduction, convection and radiation are introduced and applied to engineering problems. Analytical, numerical and graphical solutions to problems are studied. Prerequisite: M E 367 or equivalent, M E 299, 371.

463, 663 COOLING ELECTRONIC EQUIPMENT (2 + 0) 2 credits
Introduction to heat transfer modes, including conduction, convection and radiation. Discussion of thermal problems in electronic packages. Does not satisfy M E 461 requirement. Prerequisite: M E 299 or 300.

464 HEAT TRANSFER LABORATORY (0 + 3) 1 credit
Laboratory covering conduction, convection and radiation areas. Prerequisite: M E 391. Corequisite: M E 461.

465, 665 SYSTEM DESIGN (3 + 0) 3 credits
Engineering systems are simulated, designed and optimized relative to cost, weight, size or other constraints. Time value of money is stressed. Optimization techniques include computer simulations. Design project required. Study of thermal or mechanical systems.

472, 672 AIR CONDITIONING (3 + 0) 3 credits
Heating, ventilation and air conditioning (HVAC) requirements to produce thermal comfort. Use of psychrometric chart, the design of duct distribution systems, blower selection criteria and equipment selection. Winter and summer load calculations. Prerequisite: M E 371.

473, 673 REFRIGERATION (3 + 0) 3 credits
Analysis of vapor compression cycle, absorption refrigeration and staged cryogenic systems. Desirable properties of refrigerants and brines, piping arrangement and sizing. Heat exchange and sizing criteria. Prerequisite: M E 372.

474, 674 ACTIVE SOLAR ENGINEERING I (2 + 3) 3 credits
Nature and availability of solar energy. Technology of collection and use. Design, construction and testing of solar collectors and systems. Prerequisite: M E 371.

475, 675 POWER SYSTEMS DESIGN (3 + 0) 3 credits
Contemporary power systems, including geothermal power, cogeneration, waste burning systems and solar thermal systems. Prerequisite: M E 371, 461.

476, 676 INTERNAL COMBUSTION ENGINES (3 + 0) 3 credits
Otto, and Sterling Diesel cycle engines and gas turbines. Thermodynamics review, combusion, ideal cycles, real engine cycles, fuels and fuel metering, exhaust gas analysis, air pollution. Prerequisite: M E 371.

477, 677 PASSIVE SOLAR ENGINEERING (2 + 3) 3 credits
The design of buildings which interact with climate and solar energy to maintain comfort conditions. Includes computer modeling. Prerequisite: M E 371.

480, 680 GAS DYNAMICS I (3 + 0) 3 credits
Fundamentals of compressible flow; one dimensional flow, shock waves, area change, heat transfer, friction in subsonic and supersonic flow. Prerequisite: M E 367.

481, 681 GAS DYNAMICS II (3 + 0) 3 credits
Continuation of M E 480, applications to ducts, nozzles, diffusers, wind tunnels, flow measurements; oblique shock waves, method of characteristics. Prerequisite: M E 480.

482, 682 AERODYNAMICS (3 + 0) 3 credits
Lift and drag characteristics of bodies and aerodynamics characteristics of the complete airplane. Prerequisite: M E 368 or 461.

484, 684 COMPUTATIONAL FLUID MECHANICS AND HEAT TRANSFER (3 + 0) 3 credits
Application of computational methods to the numerical simulation of the conservation equations which govern fluid mechanics and heat transfer. Knowledge of FORTRAN is required. Prerequisite: M E 368 or 461.

491 MECHANICAL ENGINEERING LABORATORY (1 + 3) 2 credits
Selected experiments in the areas of fluid mechanics, solid mechanics, heat transfer, solar energy, thermodynamics and mechanical vibrations. Prerequisite: M E 391.

493 SENIOR LABORATORY (0 + 2) 1 credit
Projects related to courses. Prerequisite: M E 391, mechanical engineering major.

494 PROJECTS LABORATORY (0 + 2) 1 credit
Group and/or individual projects related to student's area of concentration. Prerequisite: M E 391, mechanical engineering major.

499 SPECIAL PROJECTS I, II 1 to 4 credits each
Study and/or experimentation in areas of special interest to mechanical engineers. Maximum of 6 credits. Advance department approval is required.

700 INTRODUCTION TO INTEGRAL METHODS WITH APPLICATIONS (3 + 0) 3 credits
Green's functions; Poisson's kernals; LaPlace and Fourier transforms and additional topics related to boundary value problems. Prerequisite: M E 403 or equivalent.

701 ADVANCED MATHEMATICAL METHODS FOR ENGINEERS (3 + 0) 3 credits
Regular and singular perturbation theory, multiple-scale analysis; asymptotic expansions with application to mechanical systems. Prerequisite: M E 403 or equivalent.

702 ADVANCED NUMERICAL METHODS (3 + 0) 3 credits
Multi-dimensional problems using boundary element, finite difference and weighted residual methods.

710 ADVANCED SYSTEM DYNAMICS AND OPTIMAL CONTROL (3 + 0) 3 credits
State space analysis of deterministic, continuous systems, observability, controllability, Lyapunov functions and stability theorems, the theory of optimal processes and Pontryagin's maximum principle.

711 ADVANCED ROBOTICS (3 + 0) 3 credits
Included topics are Newton-Euler formulation of equations of motion, inverse dynamics, path planning using the dynamic model, position and trajectory control of robotic manipulators, and compliant motion control.

720 INTRODUCTION TO CONTINUUM MECHANICS (3 + 0) 3 credits
Introduction to the mechanics of a continuous medium; stress and strain in elastic and inelastic solids; Newtonian and non-Newtonian fluids; variational methods applied to a continuum. Prerequisite: M E 445, 645.

721 VISCOELASTICITY (3 + 0) 3 credits
Viscoelastic stress-strain constitutive relations, polymer behavior, elastic-viscoelastic correspondence principle, initial/boundary value problems, wave propagation, thermoviscoelasticity, creep. Prerequisite: M E 720.

730 ENERGY AND VARIATIONAL METHODS (3 + 0) 3 credits
Equations of mechanics, energy and variational principles; Galerkin, Ritz and finite-element analysis of plate and shells. Prerequisite: M E 445, 645 or C E 724.

740 ADVANCED DYNAMICS (3 + 0) 3 credits
Fundamentals of analytical mechanics. Behavior of dynamical systems, geometric theory. Stability of multi-degree-of-freedom autonomous and nonautonomous systems. Prerequisite: M E 440, 640.

741 ADVANCED VIBRATIONS (3 + 0) 3 credits
Vibration of multi-degree of freedom systems with emphasis on modal analysis. Introduction to vibration of continuous systems, exact and approximate solutions. Prerequisite: M E 342, 453, 653.

746 ADVANCED COMPOSITE MATERIALS (3 + 0) 3 credits
Anisotropic elasticity; shear deformation effects; laminated plates and shells; energy methods applied to composite structures; joining and fastening; special topics. Prerequisite: M E 646.

750 ADVANCED MACHINE DESIGN (1 + 6) 3 credits each
(a) Creative design of machines and systems, including advanced analysis and synthesis, (b) continuation of 750a with emphasis on theory and application of photoelastic strain analysis. Prerequisite: M E 452.

760 CONDUCTION HEAT TRANSFER (3 + 0) 3 credits
Formulation of conduction problems in various coordinate systems. Solution by separation of variables, Laplace transforms, complex combination and approximate methods. Prerequisite: M E 461. Corequisite: M E 403 or equivalent.

761 CONVECTION HEAT TRANSFER (3 + 0) 3 credits
Equations of continuity, momentum, energy and mass diffusion. Laminar solutions including the Graetz problem, similarity parameters, external and internal flows. Integral methods. Turbulence. Prerequisite: M E 461.

762 RADIATION HEAT TRANSFER (3 + 0) 3 credits
Radiation properties of surfaces, radiation exchange in enclosures, radiative transfer in absorbing, emitting and scattering media, combined radiation with conduction and convection. Prerequisite: M E 461.

770 STATISTICAL THERMODYNAMICS (3 + 0) 3 credits
Introduction to the statistical thermodynamics of the pure component and of mixtures. An introduction to the kinetic theory of gases; thermodynamics of irreversible phenomena. Prerequisite: M E 372, 700.

772 ADVANCED THERMODYNAMIC/FLUID SYSTEM DESIGN (3 + 0) 3 credits
System design and analysis with emphasis on dynamic behavior. (a) Environmental systems, (b) powers systems. Prerequisite: M E 372.

780 MECHANICS OF IDEAL FLUIDS (3 + 0) 3 credits
Vorticity dynamics; planar and three-dimensional potential flows. Introduction to wave theory and hydrodynamic stability. Prerequisite: M E 368 or equivalent.

781 MECHANICS OF VISCOUS FLUIDS (3 + 0) 3 credits
Fundamental laws of motion for a viscous fluid; exact solutions of the Navier-Stokes equations; study of laminar, turbulent boundary layers including approximate numerical methods. Prerequisite: M E 368 or equivalent.

785 EXPERIMENTAL METHODS IN FLUID/THERMAL SCIENCES (2 + 3) 3 credits
Lectures and laboratory demonstrations of flow visualization, anemometry, interferometry and related state-of-the-art methods used in the fluid/thermal sciences.

791 SPECIAL TOPICS 1 to 4 credits
Literature search and analytical study of special problems. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 4 credits
Study and experimentation in areas of special interest.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

MEDICINE (MED)

402, 602 ADVANCED PROBLEM SOLVING (1 + 3) 2 credits *S/U only*
Application of biological science knowledge and concepts to simulated clinical problems. Application, demonstration and role modeling of problem-solving techniques in medicine. Maximum of 4 credits.

461, 661 ELECTIVES 2 to 8 credits
Experience in the interdisciplinary medical subspecialities emphasizing (a) administrative internship, (b) physical diagnosis, (c) radiology.

473, 673 PHYSICAL DIAGNOSIS II (1 + 3) 2 credits *S/U only*
Medical history taking and physical examination with emphasis on abnormal and pathological findings, doctor-patient relationships, medical record keeping and medical problem solving.

601 BIOMEDICAL PROBLEM SOLVING (1 + 3) 2 credits *S/U only*
Application of biological science knowledge and concepts to simulated clinical problems. Application, demonstration and role modeling of problem-solving techniques in medicine. Maximum of 4 credits.

670 PHYSICAL DIAGNOSIS I (1 + 3) 2 credits *S/U only*
Knowledge and skills of the physical examination with emphasis on normal findings, doctor-patient relationships, introduction to medical history taking, medical record keeping and medical problem solving.

METALLURGICAL ENGINEERING (METE)

101 INDUSTRY ORIENTATION LECTURES (1 + 0) 1 credit
(See CH E 101 for description.)

103 COMPUTER APPLICATIONS (2 + 0) 2 credits
(See CH E 103 for description.)

151 INTRODUCTION TO MATERIALS (3 + 0) 3 credits
Basic concepts of material science. Structure and properties of all solid materials. Testing and processing of materials.

203 SURVEY OF EXTRACTION METALLURGY (3 + 0) 3 credits
Overall view of the art and science of extraction metallurgy including the concentration of ores, the extraction of metals from ores, the refining of metals, and environmental implications of these processes.

232 PRINCIPLES OF METALLURGICAL AND CHEMICAL ENGINEERING (3 + 0) 3 credits
Scientific bases for process engineering stoichiometry, gas behavior combustion and mass and energy balances. Problem solving is emphasized. Field trip. To progress to subsequent courses identified by CH E or METE, a grade of C or higher must be earned in this course. Corequisite: MATH 215. (Same as CH E 232.)

322 MINERAL PROCESSING I (3 + 0) 3 credits
Principles and practices of mineral preparation and concentration.

324 MINERAL PROCESSING LABORATORY (0 + 3) 1 credit
Experiments demonstrating principles of mineral processing.

350 ELEMENTS OF MATERIALS SCIENCE (3 + 0 or 3) 3 or 4 credits
Internal structure of materials, the dependence of properties upon these structures, and the behavior of materials in service.

373 FLUID MECHANICS (3 + 0) 3 credits
(See CH E 373 for description.)

401, 601 CORROSION OF METALS (3 + 0) 3 credits
Thermodynamic and kinetic basis for the electrochemical theory of corrosion. Potential-pH diagrams. Polarization curves. Forms of corrosion to include: general and galvanic corrosion, pitting and stress corrosion cracking. Methods of corrosion prevention.

410 EXTRACTIVE METALLURGY I—PYROMETALLURGY (3 + 0) 3 credits
Quantitative and descriptive treatment of the unit processes used and fundamentals of smelting, melting, refining of metals by high temperature methods. Prerequisite: METE 232, CH E 361. (Same as CH E 410.)

411 PYROMETALLURGY LABORATORY (0 + 3) 1 credit
Special methods not ordinarily included in chemical analysis to measure quantities that are important in studying and controlling pyrometallurgical operations. Prerequisite: METE 103. Corequisite: METE 410.

416, 616 X-RAY DIFFRACTION (2 + 3) 3 credits
Generation and properties of X-rays; diffraction techniques, structure determination, X-ray fluorescence and microscopy analysis of metals. Prerequisite: METE 350.

421, 621 MINERAL PROCESSING II (3 + 0) 3 credits
Continuation of METE 322 with emphasis on flotation. Prerequisite: CHEM 353.

423, 623 SURFACE CHEMISTRY OF MINERALS (3 + 0) 3 credits
Thermodynamics of surfaces, electrostatic and electrokinetic phenomena, adsorption at interfaces, and properties of monolayers as applied to processing of minerals. Prerequisite: CHEM 354. (Same as CH E 423.)

425, 625 HYDROMETALLURGICAL REACTIONS (3 + 0) 3 credits
Systematic treatment embracing dissolution of minerals, leaching, precipitation, and complex formation in aqueous systems. Prerequisite: CHEM 354.

631, 631 EXTRACTIVE METALLURGY II—HYDROMETALLURGY (3 + 0) 3 credits
Quantitative and descriptive treatment of unit processes used and fundamentals of leaching, precipitation, electrolysis, both liquid and resin ion exchange, and purification of metals by low temperature methods. Prerequisite: METE 432, CH E 361.

633-434, 633-634 ADVANCED METALLURGY 1 to 4 credits each
Advanced studies in mineral dressing or chemical metallurgy (including laboratory investigations.)

650 TECHNIQUES OF PROCESS DESIGN AND ECONOMICS (3 + 0) 3 credits
(See CH E 450 for description.)

660 PHYSICAL METALLURGY I (2 + 3) 3 credits
Structure, properties and selection of alloys, vacancies and diffusion, phase diagrams, nucleation and growth, hardening of steels, creep, fracture. Prerequisite: METE 350.

661, 661 PHYSICAL METALLURGY II (2 + 3) 3 credits
Supplementary and advanced treatment of topics introduced in METE 350.

662, 662 THERMODYNAMICS OF IRREVERSIBLE PROCESSES (3 + 0) 3 credits
Thermodynamic treatment of irreversible metallurgical, chemical, and electrochemical processes, transport processes, coupling phenomena, etc. Prerequisite: Ch E 361 or M E 371 and CHEM 353. (Same as CH E 462.)

670 PROCESS EQUIPMENT DESIGN (3 + 0) 3 credits
Design methods for chemical and metallurgical engineering process equipment with emphasis on fluid mechanics, heat transfer and mass transfer systems. Prerequisite: METE 450.

672 INTRODUCTION TO CERAMICS (3 + 0) 3 credits
Structures and imperfections, atom mobility, grain boundaries, ceramic phase diagrams, transformation, grain growth and sintering, properties and applications. Prerequisite: MATH 320, METE 350.

482 DESIGN PROJECT (1 + 6) 3 credits
(See CH E 482 for description.)

484, 684 HEAT TRANSFER (3 + 0) 3 credits
(See CH E 484 for description.)

493, 693 MASS TRANSFER (3 + 0) 3 credits
(See CH E 493 for description.)

495, 695 SPECIAL PROBLEMS 1 to 3 credits
Individual research problems in metallurgy. Maximum of 6 credits.

700 APPLIED MATHEMATICS IN CHEMICAL AND METALLURGICAL ENGINEERING (3 + 0) 3 credits
Application of ordinary and partial differential equations, transforms, the calculus of finite differences and numerical methods in chemical and metallurgical engineering problems. Prerequisite: MATH 320 or M E 300, CH E 493, METE 431.

701-702 ADVANCED METALLURGY 1 to 5 credits each
(a) General metallurgy, (b) metallurgical analysis, (c) mineral dressing, (d) pyrometallurgy, (e) hydrometallurgy, (f) electro-metallurgy, (g) nonferrous metallurgy, (h) ferrous metallurgy, (j) physical metallurgy, (k) metallography, (m) heat treatment, (n) mechanical metallurgy, (p) history of metallurgy. These courses consist of either lectures, periodic conferences, supervised reading, laboratory or field work. May be repeated more than once to pursue different studies.

703 ADVANCED PHYSICAL METALLURGY (3 + 0) 3 credits
Advanced treatments of mechanical deformation, dislocation theory, surface structure, solidification, annealing, phase transformations, hardening mechanisms in steel and other selected topics. Prerequisite: METE 451.

711 ADVANCED CORROSION PRINCIPLES (3 + 0) 3 credits
Advanced electrochemical theory of corrosion mechanism. Experimental technique in study of corrosion. Evaluation of current research progress in various topics in corrosion taken from the literature. Prerequisite: METE 401.

715 X-RAY DIFFRACTION (1 + 6) 3 credits
Theory of X-ray diffraction and methods used in obtaining and interpreting X-ray diffraction diagrams.

721 ALLOY SELECTION AND FAILURE ANALYSIS (3 + 0) 3 credits
Fundamentals of alloying element behavior in metals. Alloying for mechanical strength and corrosion resistance. Identification and prevention of various failure modes including fracture, corrosion and wear. Prerequisite: METE 350 or equivalent.

725 PROCESS ENGINEERING OF COMMINUTION (2 + 3) 3 credits
Crushing and griding theory and its application in simulation and control of comminution circuits. Prerequisite: MATH 320 or M E 300.

726 PIPELINE TRANSPORT OF SLURRIES (2 + 1) 3 credits
Principles of the flow of liquid-solid slurries in pipes and rotational viscometers and application to the design of slurry pipelines. Prerequisite: MATH 320 or M E 300.

728 INTERFACIAL PHENOMENA (3 + 0) 3 credits
Surface chemical and physical phenomena associated with the boundary between two phases. Prerequisite: MATH 320 or M E 300, CHEM 354.

731 ADVANCED PROCESS CONTROL (3 + 0) 3 credits
Selection of topics of interest in Process Control Research including: control applications of process dynamic modeling, dynamic testing and analysis, simulation of dynamic systems.

738 ADVANCED CERAMIC MATERIALS (3 + 0) 3 credits
Special methods for production, processing. Advanced concepts in phase equilibria, transformation, grain growth and sintering and properties in application of ceramic materials problems. Prerequisite: METE 350.

741 ADVANCED KINETICS AND REACTOR DESIGN (3 + 0) 3 credits
Complex reaction rates, networks; catalytic processes, gas-solid reactions; batch, plug flow, perfectly mixed flow reactor equations; stability analysis; homogeneous, heterogenous models; fluidized bed reactors. Prerequisite: CH E 440.

751 PHYSICS OF METALS (3 + 0) 3 credits
Theoretical study of the metallic state. Emphasis upon crystal structure, elastic and plastic properties, crystal imperfections and thermal and magnetic properties.

760-761 ADVANCED METALLURGICAL THERMODYNAMICS (3 + 0) 3 credits each
Applications of thermodynamics to physicochemical hydrodynamic and pyrometallurgical unit processes. Prerequisite: MATH 320 or M E 300, CH E 361, 437 or 438, METE 431.

762 STATISTICAL THERMODYNAMICS (3 + 0) 3 credits
Introduction to statistical thermodynamics with applications to metallurgy and chemical engineering. Prerequisite: CH E 361.

764 ADVANCED FLUID DYNAMICS (3 + 0) 3 credits
Advanced concepts in theoretical and applied fluid and heat dynamics involving steady state, transient and dyclic phenomena in chemical and metallurgical engineering. Prerequisite: MATH 320, CH E 373 or METE 373.

765 ADVANCED MASS TRANSFER (3 + 0) 3 credits
Multicomponent diffusion, mass transport models, advanced concepts in analysis and design of continuous and multistage separation processes, advanced topics including recent literature. Prerequisite: MATH 320, CH E 493 or METE 493.

773 PRECIOUS METALS HYDROMETALLURGY (3 + 0) 3 credits
Examination of processes for processing gold and silver ores. Field trip required.

790 MINERAL INDUSTRY SEMINAR 1 to 3 credits
Review and discussion by staff members and graduate students of individual research or important new publications concerning the mineral industry and related sciences. Maximum of 6 credits. Prerequisite: graduate standing or faculty member. (Same as GEOL 790, MINE 790.)

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits.

799 DISSERTATION 1 to 24 credits
For majors in the metallurgical engineering doctoral program only.

Inactive Courses

441, 641 METALLURGY OF REACTIVE METALS (2 + 0) 2 credits
452, 652 INTRODUCTION TO THE STRUCTURE AND PROPERTIES OF SOLIDS (3 + 0) 3 credits
752 MAGNETIC PROPERTIES OF SOLIDS (3 + 0) 3 credits

MICROBIOLOGY (MICR)

401, 601 MEDICAL MICROBIOLOGY (7 + 6) 9 credits
Fundamental concepts of immunochemistry, cellular immunology, clinical immunology, medical bacteriology, virology, medical mycology and parasitology as they apply to medicine and infectious diseases.

483, 683 MEDICAL MYCOLOGY (1 + 6) 3 credits
Application of mycological techniques to clinical specimens in the identification of disease-causing fungi. Prerequisite: BIOL 101 or equivalent.

487, 687 PROBLEMS IN INFECTION AND IMMUNITY (1 + 0 per credit) 1 to 3 credits
Research and/or seminar-oriented elective in either bacteriology, immunology, mycology, or virology.

490 INDEPENDENT STUDY 1 to 4 credits

711 RECOMBINANT DNA TECHNIQUES (0 + 9) 3 credits
Intensive laboratory experience covering basic principles and techniques of gene cloning. Methods for growing and isolating vectors, gel analysis of restriction fragments and selection of specific recombinant DNA molecules. Prerequisite: B CH 400, 600 or equivalent. Advance approval of department.

780 INTRODUCTORY CELLULAR IMMUNOLOGY (3 + 0) 3 credits
Basic concepts of cellular immunology including immunoglobulin structure, products of the major histocompatibility complex, lymphocyte activation and differentiation and mechanisms of damage mediated by the immune system.

784 MOLECULAR MECHANISMS OF VIRUS REPLICATION (3 + 0) 3 credits
Current issues in virus DNA, RNA and protein synthesis. Emphasis on mechanisms of control of gene expression utilizing model animal and bacterial virus groups.

785 EXPERIMENTAL IMMUNOCHEMISTRY (1 + 6) 3 credits
Emphases encompass the qualitative and quantitative methods for measurement of immunoglobulins. Mechanisms of antigen and antibody interaction are considered. Prerequisite: B CH 400, 600 or equivalent.

787 CELLULAR AND MOLECULAR BIOLOGY OF CANCER (3 + 0) 3 credits
Introduction to the basic biology of cancer; development of, and emphasis on, insights from current research; with perspectives relating this research to human cancer.

Inactive Courses
482, 682 MEDICAL BACTERIOLOGY (2 + 3) 3 credits
484, 684 MEDICAL VIROLOGY (2 + 3) 3 credits
786 CELLULAR IMMUNOLOGY (1 + 6) 3 credits

MILITARY SCIENCE (MIL)

101 INTRODUCTION TO MILITARY SCIENCE (2 + 0) 2 credits
Mission, organization, and function of the Armed Services; the role of the military in relation to national objectives and security; the evolution of weapons and warfare.

102 BASIC LEADERSHIP AND ORGANIZATION (2 + 0) 2 credits
Fundamentals of good leadership to include different theories; fundamental organization and operation of the Army.

201 MILITARY TOPOGRAPHY AND ORIENTEERING (2 + 0) 2 credits
Proper use and appreciation of maps, photos, and compasses and the development of orienteering skills to include cross-country navigation over unfamiliar terrain.

203 BASIC TOPICS IN LEADERSHIP SKILLS (1 or 2 + 0) 1 or 2 credits
Presentation of basic military leadership skills in such areas as land navigation, first aid, desert survival, winter survival, and marksmanship. May be repeated to a maximum of 4 credits provided different subject areas are studied for each period of enrollment.

204 BASIC SUMMER CAMP 2 credits
Six-week camp designed to substitute for the first two years of ROTC. Includes map reading, national security, military history, and various other military subjects. Course conducted at a military reservation designated by the Army.

205 SMALL UNIT LEADERSHIP TECHNIQUES (2 + 1) 2 credits
Principles and techniques of leading a squad in combat with emphasis on individual roles of squad members, decision making, control and management. Prerequisite: completion of MIL 101, 102, 201.

301 LEADERSHIP IN SMALL UNIT OPERATIONS (3 + 0) 3 credits
Introduction to the principles and techniques of combat tactics and management at the platoon level. Emphasis is placed on considered factors in the decision-making process; techniques of command and control of troops; introduction to the missions, roles, and contributions of the several branches of the Army. Prerequisite: completion of basic program.

302 ADVANCED LEADERSHIP DEVELOPMENT (3 + 0) 3 credits
Enhances student understanding of the planning and coordinating steps in the decision-making process and the principles and techniques of command, control, and management at all levels. Emphasizes clarity of written and oral expression and the need for deliberate analysis of problems to produce logical solutions. Prerequisite: completion of basic program.

303 ADVANCED SUMMER CAMP 2 credits
Advanced cadets spend six weeks at an Army installation to learn practical skills in tactics, field living, leadership, weaponry, technical military equipment, military customs and traditions, physical fitness, confidence building, and personnel management. Prerequisite: MIL 301 and 302.

304 ADVANCED TOPICS IN LEADERSHIP (1 or 2 + 0) 1 or 2 credits
Includes student research and presentation of leadership styles, leadership characteristics, staff procedures, planning, and organization. Maximum of 4 credits provided different subject areas are studied for each period of enrollment.

401 SEMINAR ON THEORY AND DYNAMICS OF THE MILITARY TEAM (3 + 0) 3 credits
Explores core values governing officer behavior; the concepts for military organizations; the theory of military organizations; and tactical employment of forces emphasizing company-sized operations. Prerequisite: completion of basic program.

402 SEMINAR IN LEADERSHIP AND MANAGEMENT (3 + 0) 3 credits
Stresses administrative and logical matters which confront the commander at platoon and company levels. Introduction to principles of personnel, fiscal, and supply management, and the philosophy and purpose of military law. Prerequisite: completion of basic program.

MINING ENGINEERING (MINE)

A. MINERAL INDUSTRY EMPLOYMENT 0 credits
Work for a mining company at least one summer vacation and prepare an acceptable report on the experience. Required for mining engineering majors.

101 INTRODUCTION TO MINING (1 + 0) 1 credit
Introduction to techniques, practices and problems in modern mining. Field trip required.

102 MINERAL MAP MAKING (1 + 3) 2 credits
Introduction to the basic principles of modern drawing and cartography as used in mineral engineering reports.

210 MINING METHODS (3 + 0) 3 credits
Introduction to mining systems with emphasis on methods, equipment and terminology of surface and underground mine operations. Prerequisite: MINE 101, 102 or equivalent.

213 COMPUTER PROGRAMMING (1 + 3) 2 credits
Development of procedures to solve numerical and nonnumerical earth science problems by digital computer, using flow charts and FORTRAN IV.

218 MINING ENGINEERING LABORATORY (0 + 3) 1 credit
Application of unit operations in underground mining. Field evaluation of blasting patterns, support methods and materials handling. Fulfills MSHA training requirement. Prerequisite: MINE 210.

301 COAL MINING (2 + 0) 2 credits
Geology of coal, its constitution and uses. Underground and surface mining of coal including mining methods and equipment. Prerequisite: MINE 210.

310 MATERIALS HANDLING (3 + 0) 3 credits
Design and evaluation of materials handling systems in surface and underground mines. Hoisting, conveyors, track and rubber-tired haulage, load-haul systems. Prerequisite: M E 241, 342, MINE 210.

324 COMPUTER APPLICATIONS (1 + 3 or 6) 2 or 3 credits
Use of digital computers in the earth sciences, with emphasis on developing student's ability to use computers in industry or research. Prerequisite: MINE 213.

342 MINE SURVEYING (0 + 3) 1 credit
Theory and mathematics of mine surveying.

343 APPLIED MINE SURVEYING (0 + 6) 2 credits
Surface and underground surveying techniques in exploration and mining operations. A charge is made for field expenses. Prerequisite: C E 241.

344 MINE ENVIRONMENTAL CONTROL (2 + 3) 3 credits
Theory and practice of creating safe, healthy, and efficient working environments underground. Mine ventilation techniques. Prerequisite: M E 371, C E 367.

351 MINING LAW (2 + 0) 2 credits
U.S. and foreign, federal and state laws affecting the mineral industry and pertaining to mineral land acquisition, corporations, ethics, mining, taxation, water, environment, labor, safety, and welfare.

361 OPERATIONS RESEARCH METHODS (3 + 0) 3 credits
Introduction to the theory of Operations Research and its application in the mining industry. Prerequisite: AGEC 270, MINE 213.

390 MINING COMMUNICATION (1 + 0) 1 credit
Study of written and oral skills in engineering and management communication. Video taped technical talk given to class. Report required on senior field trip.

395 SENIOR REPORT 1 to 3 credits
Formal, comprehensive report on a subject approved by the student's adviser and department chairman.

601, 611 MINE ECONOMICS (2 + 0) 2 credits
Introduction to management accounting principles, balance sheet and income statement, depreciation, depletion and cash flow. Financial evaluation using present value theory, equipment evaluation and replacement. Risk and sensitivity analysis. Prerequisite: MINE 210, 310; AGEC 270; MINE 361 or equivalent.

603, 613 MINERAL INVENTORY ESTIMATION (2 + 0) 2 credits
Principles of sampling and the study of the major methods for mineral reserve estimation including polygonal, inverse distance squared and geostatistical. Grade tonnage curves for normal and log normal distribution. Variograms and staging of mineral reserves. Prerequisite: MINE 213, AGEC 270 or equivalent.

418, 618 MINE FEASIBILITY (1 + 3) 2 credits
Data, techniques, and layout required for a formal mine feasibility report to be prepared on a given mineral deposit. Prerequisite: MINE 411, 413.

425, 625 MINE POWER AND DRAINAGE (3 + 0) 3 credits
Electrical and compressed air power in the design of underground mining and mine water drainage systems. Prerequisite: C E 367, M E 371, E E 212.

445, 645 DRILLING AND BLASTING (3 + 0) 3 credits
Current theory and practice in drilling and blasting. Prerequisite: MINE 448.

446, 646 THEORY OF EXPLOSIVES (2 + 3) 3 credits
Thermodynamic theory and the blasting action of explosives.

448, 648 ROCK MECHANICS I (2 + 3) 3 credits
Uniaxial and triaxial stress-strain analysis and structural analysis of rocks in the design of underground openings. Prerequisite: M E 241, GEOL 332.

449, 649 ROCK MECHANICS II (2 + 3) 3 credits
Application of Rock Mechanics in underground and open-pit mining. Includes excavation, rock burst, and slope stability. Prerequisite: MINE 448, 648.

454, 654 MINING AND SURFACE ENVIRONMENT (2 + 0) 2 credits
Effects of mining, milling, and smelting on the surface environment, and their control to allow maximum conservation and minimum waste of natural resources. Field trip.

472, 672 WORLD MINERAL ECONOMICS (3 + 0) 3 credits
Minerals in World Affairs. Interdependence of nations on minerals and the economic and political problems caused by their unequal geographic distribution and divided political control.

482 ECONOMICS OF THE BASE METALS (3 + 0) 3 credits
Systematic treatment of current aspects of international production and trade in base metals.

495, 695 SPECIAL PROBLEMS 1 to 3 credits each
Individual research problems in mining engineering. Maximum of 6 credits.

701-702 ADVANCED MINING ENGINEERING 1 to 5 credits each
(a) General mining, (b) excavation, (c) drilling, (d) blasting, (e) equipment, (f) transportation, (g) design, (h) surface mining, (j) underground mining, (k) safety, (m) ventilation, (n) mining economics, (p) mine administration, (r) mining law, (s) mineral economics, (t) history of mining, (u) mineral explorations, (v) rock mechanics, (w) mining conservation, (x) nonmetallic mining. These courses consist of either lectures, periodic conferences, supervised reading, laboratory or fieldwork. May be repeated more than once to pursue different studies.

729 ADVANCED COMPUTER APPLICATIONS 1 to 3 credits
Computer systems, languages, and economics. Major individual earth science project on computer. Prerequisite: MINE 213 or 324.

745 ADVANCED ROCK MECHANICS (2 + 3) 3 credits
Field and laboratory studies of applied rock mechanics. Prerequisite: MINE 448, 449.

749 ADVANCED BLASTING METHODS DESIGN 1 to 3 credits
Modern theories in the use of explosives and the design of blasting systems. Prerequisite: MINE 446.

790 MINERAL INDUSTRY SEMINAR 1 to 3 credits
(Same as METE 790).

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

Inactive Courses

316 STATISTICAL ANALYSIS IN THE EARTH SCIENCES (2 + 0) 2 credits
405 SENIOR REPORT 1 to 3 credits

MUSIC (MUS)

INDIVIDUAL INSTRUCTION: Special fee of $125.00 per half hour lesson.

100 CONCERT CLASS (0 + 1) 0 credits *S/U only*
Development of listening skills through attendance at musical events: music department concerts, master classes, approved community events.

101 MUSIC FUNDAMENTALS AND EAR TRAINING (3 + 0) 3 credits
Notation, terminology, intervals, scales and chords. Designed to furnish a foundation for musicianship.

103 CLASS BRASS INSTRUCTION (1 + 2) 2 credits
Fundamental instruction in each of the instruments and in class teaching procedures. Simple selections, employing various keys and rhythms.

104 CLASS WOODWIND INSTRUCTION (1 + 2) 2 credits
Fundamental instruction in each of the instruments and in class teaching procedures. Simple selections, employing various keys and rhythms.

106, 306 PEP BAND (0 + 3) 1 credit each
A performing group for university events. Maximum of 2 credits each.

111, 311 CONCERT CHOIR (3 + 0) 1 credit each
Performance of representative choral music of all periods; featured in local concerts and on tour. Maximum of 4 credits each.

113 CLASS VOCAL INSTRUCTION (1 + 0) 1 credit
Fundamentals of tone production, breath control, and practical techniques involved in reading and interprering songs. Maximum of 4 credits.

117, 317 MARCHING AND CONCERT BAND (0 + 3) 1 credit each
Marching techniques and performances; performance of concerr literature (after marching season). Prerequisite: previous band experience. Maximum of 6 credits each.

118, 318 SYMPHONIC BAND AND WIND ENSEMBLE (0 + 3) 1 credit each
Performance of representative literature for large bands and chamber winds. Prerequisite: previous band experience and audition. Maximum of 6 credits each.

119, 319 SYMPHONIC CHOIR (0 + 3) 1 credit each
Presentation of large-scale choral works. Maximum of 6 credits each.

120 SURVEY OF JAZZ (3 + 0) 3 credits
Chronological study of jazz music and musicians with emphasis on directed listening.

121 MUSIC APPRECIATION (3 + 0) 3 credits
Historical and cultural background of music. A general course in music appreciation open to all students. Representative works are heard and analyzed.

122 MASTERWORKS OF MUSIC (3 + 0) 3 credits
Major representative works of the standard repertory with emphasis on their historical and cultural milieu. Concert attendance required.

123 CLASS STRING INSTRUCTION (1 + 2) 2 credits
Elementary instruction in violin, viola, cello and bass.

124 CLASS PERCUSSION INSTRUCTION (1 + 2) 2 credits
Elementary instruction in the various percussion instruments.

125, 325 UNIVERSITY ORCHESTRA (0 + 3) 1 credit each
One or more concerts of representative orchestra literature are given each semester. Maximum of 6 credits each.

131, 331 JAZZ IMPROVISATION (1 + 1) 1 credit
Performance oriented study of improvisation in the jazz idiom. Audition required. Maximum of 4 credits each.

149 STUDIO INSTRUMENT/VOICE FOR NONMAJORS (½ + 0) 1 credit
Applied music instruction; includes style periods, literature, composers. Prerequisite: basic competency on instrument (audition). Maximum of 3 credits.

151, 351, 751 PIANO (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 351 or 751.

153 VOICE (½ or 1 + 0) 1 to 3 credits each
MUS 218 is a corequisite for MUS 153 for students enrolling for 3 credits. Maximum of 12 lower-division credits.

155, 355, 755 BRASS INSTRUMENTS (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 355 or 755.

157, 357, 757 WOODWIND INSTRUMENTS (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 357 or 757.

159, 359, 759 STRINGS (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 359 or 759.

161, 361, 761 PERCUSSION (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 361 or 761.

163, 363, 763 ORGAN (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: MUS 282 or equivalent. Prerequisite: audition for 363 or 763.

181-182 FUNCTIONAL PIANO I AND II (0 + 2) 1 credit each
Class instruction for students with limited or no keyboard experience.

201 MUSIC HISTORY I (3 + 0) 3 credits
Survey of Western music: origins through the Baroque period.

202 MUSIC HISTORY II (3 + 0) 3 credits
Classical AND Romantic periods.

203 MUSIC HISTORY III (3 + 0) 3 credits
Twentieth century.

204 CHAMBER MUSIC FOR NONMAJORS (0 + 2) 1 credit
Performance of chamber music literature: knowledge of style periods, composets, literature. Prerequisite: sufficient performance competency (audition). Maximum of 3 credits.

205, 405, 605 UNIVERSITY CHAMBER MUSIC ENSEMBLE (0 + 2) 1 credit each
Performance of chamber music literature. Maximum of 6 credits each.

207-208 THEORY I AND II (3 + 0) 3 credits each
Counterpoint and harmony (written and keyboard). Prerequisite for MUS 208 is 207.

209-210 SIGHTSINGING AND DICTATION I and II (0 + 2) 1 credit each
Solfege and dictation, rhythmic and melodic.

215, 415, 615 BRASS QUINTET (0 + 2) 1 credit each
Performing ensemble specializing in brass quintet literature. Maximum of 6 credits each.

218 VOCAL REPERTORY COACHING (1 + 0) 1 credit
Performance of art song literature of all styles and periods. Emphasis on performance of complete cycles and on contemporary song literature. Open to vocalist and pianist. Maximum of 6 credits.

220, 420, 620 BRASS ENSEMBLE (0 + 2) 1 credit each
A performance organization specializing in brass ensemble literature from the Renaissance to the present. Maximum of 6 credits each.

221 SPECIAL STUDIES IN MUSIC LITERATURE (2 or 3 + 0) 2 or 3 credits
Special topics may include: Jazz in America; the Classical Style; the American Musical Theatre. Maximum of 6 credits.

222 ELECTRONIC MUSIC AND SOUND RECORDING TECHNIQUES (1 + 2) 2 credits
Electronic music, analog and digital. Includes techniques of electro-acoustical recording (tape and computer sequencing).

223 RECORDING TECHNIQUES AND MIDI (1 + 2) 2 credits
Advanced musical instrument digital interface (MIDI) applications in computer sequencing with analog tape recording; includes computer sequencing, synthesizer programming effects. Prerequisite: MUS 222.

229, 429, 629 TECHNIQUES OF PIANO ACCOMPANIMENT (1 + 1) 1 credit each
Practical experience in accompanying vocal and instrumental performers. Prerequisite: audition required. Maximum of 4 credits each.

230, 430, 630 UNR CONCERT JAZZ BAND (0 + 2) 1 credit each
A performing ensemble specializing in jazz and rock literature and performance practices. Maximum of 6 credits each.

270 OPERA THEATRE I (0 + 2) 1 credit
Beginning music theatre techniques for singers, pianist-coaches, stage directors, including production and performance. Maximum of 4 credits.

281-282 FUNCTIONAL PIANO III AND IV (0 + 2) 1 credit each
Class instruction for students with minimal keyboard experience or as a continuation of MUS 181-182.

301-302 THEORY III AND IV (3 + 0) 3 credits each
Continuation of MUS 207-208, including study of diatonic and chromatic harmony. Prerequisite: MUS 207-208 or equivalent.

303 KEYBOARD HARMONY (2 + 0) 2 credits
Keyboard approach to the study of chord progressions, the realization of figures basses, and harmonization of melodies and basses. Designed for piano and organ majors.

307-308 SIGHTSINGING AND DICTATION III AND IV (0 + 2) 1 credit each
Advanced solfege and dictation, rhythmic and melodic. Prerequisite: MUS 210.

310 ORCHESTRATION (3 + 0) 3 credits
Arranging music for full orchestra, band and chorus. Transposition, voicing, transcriptions from piano score. Prerequisite: MUS 301-302.

322 INSTRUMENTAL CONDUCTING (2 + 0) 2 credits
Technique of the baton and score reading. Practical leadership experience may be gained by directing the band, orchestra or ensembles.

323 MUSIC METHODS FOR ELEMENTARY MUSIC SPECIALIST (3 + 0) 3 credits

Methods, materials and special approaches for teaching elementary classroom instrumental and vocal music, grades K-6. Prerequisite: MUS 208.

324 FUNDAMENTALS AND METHODS FOR ELEMENTARY TEACHERS (3 + 0) 3 credits
Basic music fundamentals for classroom teachers; methods of teaching songs, using instruments, creative activities, listening, movement and rhythmic response.

337 STAGE BAND ARRANGING (2 + 2) 2 credits
Analysis of the jazz harmonic idiom as applied to the instrumentation of the modern dance orchestra in which arrangements are written and played. Prerequisite: MUS 207-208.

350 KEYBOARD LITERATURE (2 + 0) 2 credits
Literature for harpsichord, organ and piano with particular reference to the historical and musical characteristics of the works. Recordings and student performances are utilized. Prerequisite: functional keyboard reading ability.

352 CHORAL CONDUCTING AND METHODS (3 + 0) 3 credits
Rehearsal problems and techniques for standard choral literature. Materials, planning and organization of choral groups. Prerequisite: MUS 322.

353, 753 VOICE (¼ or 1 + 0) 1 to 4 credits
Maximum of 16 upper-division credits, 4 graduate credits. Prerequisite: audition required.

354 INSTRUMENTAL MUSIC METHODS (3 + 0) 3 credits
Organization of bands, orchestra, instrumental ensembles in the public schools; materials, techniques and problems. Prerequisite: MUS 207-208, and participation in University Band, University Singers or University Community Symphony.

401 ADVANCED STAGE BAND ARRANGING (2 + 0) 2 credits
Analysis of materials and techniques developed in MUS 337. Writing and performance of arrangements on professional level are required. Prerequisite: MUS 337 or equivalent.

406, 606 PERFORMANCE PRACTICE (2 + 0) 2 credits
Performance practices of various eras and effect on presentation of representative works during the present and in their own time. Maximum of 6 credits. Prerequisite: MUS 201-202.

407, 607 SYMPHONIC LITERATURE (2 + 0) 2 credits
Detailed study and analysis of the development of the symphony. Prerequisite: MUS 201-202.

408 FORM AND ANALYSIS (3 + 0) 3 credits
Analysis of song forms, variations, rondo and sonata forms. Prerequisite: MUS 301-302.

409-410, 609-610 COMPOSITION (2 + 0) 2 credits each
Original writing in the smaller forms for a variety of media with preparation for and presentation in public performance. Prerequisite: MUS 301-302.

614, 614 CHORAL LITERATURE (2 + 0) 2 credits
History and analysis of representative choral works from 1600 to the present. Prerequisite: MUS 201-202.

618 INTERMEDIATE VOCAL REPERTORY COACHING (1 + 0) 1 credit
Performance of art song literature of all styles and periods. Emphasis on performance of complete cycles and on contemporary song literature. Open to vocalists and pianists. Prerequisite: MUS 218. Maximum of 6 credits.

622, 622 MUSIC OF TODAY (2 + 0) 2 credits
Recent trends in music and their relationship with the past. Analysis of special harmonic, melodic and structural features of 20th century music. Prerequisite: MUS 201-202.

623, 623 CHAMBER MUSIC LITERATURE (2 + 0) 2 credits
Music written for small groups in Baroque, Classical, 19th and 20th century periods. Prerequisite: MUS 201-202.

624, 624 AMERICAN MUSIC (2 + 0) 2 credits
Detailed examination of the music of the U.S. from the Revolutionary War to the present. Prerequisite: MUS 201-202.

626, 626 VOCAL LITERATURE (2 + 0) 2 credits
Solo and chamber vocal music from the Renaissance to the present. Prerequisite: MUS 201-202.

627 MARCHING BAND PROBLEMS (2 + 0) 2 credits
Organization, development and rehearsal techniques used in the marching band, including pageantry and precision drill. Prerequisite: prior experience and approval of instructor.

428, 628 OPERA LITERATURE (2 + 0) 2 credits
Detailed consideration of selected operas of the various nationalities and periods in music history. Prerequisite: MUS 201-202.

447, 647 DIRECTORS' WORKSHOP (1 + 0) 1 credit
Scheduled during Tahoe Music Camp; designed to use band, choral and orchestral groups for demonstration. Special attention to new repertoire, program planning and supervised conducting. Individual conferences are scheduled with guest and resident music camp faculty. Maximum of 4 credits.

448, 648 ADVANCED BAND ADMINISTRATION AND RELATED PROBLEMS (2 + 0) 2 credits
Organizing the program, administering the physical plant and equipment, establishing favorable teacher-pupil relations, directing the musical program and reviewing recent developments in the field. Prerequisite: teaching experience or exceptional background in the area.

449, 649 CHORUS PROBLEMS (2 + 0) 2 credits
Demonstration and lecture on aspects of vocal technique and organization involved in directing high school and college choruses.

450, 650 PIANO MATERIALS AND METHODS (2 + 0) 2 credits
Mechanics of piano teaching; technical and pedagogical literature, typical problems and solutions, the historical development of piano pedagogy.

470 OPERA THEATRE II 1 to 3 credits
More advanced music theatre techniques, including major roles for singers in UNR Opera Theater productions and one-act opera projects for directors and pianist-coaches. Maximum of 8 credits.

483, 683 PIANO SEMINAR (0 + 2) 1 credit
Special problems in performance, literature and pedagogy. Maximum of 4 credits.

484, 684 WORKSHOP/CONFERENCE IN MUSIC (0 + 2 per credit) 1 to 3 credits
Topics in music and music education. Maximum of 12 credits each.

485, 685 INTERNSHIP IN MUSIC EDUCATION (0 + 2 per credit) 1 to 3 credits
Application of course content included in MUS 323, 352 or 354 in the schools or community agencies under the supervision of school or agency personnel and university staff members. Prerequisite: MUS 323, 352 or 354. Maximum of 12 credits each.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

498 SEMINAR IN MUSIC (2 + 0) 2 credits
Synthesizes formal training in performance, theory and the history of music. Prerequisite: MUS 201, 320, 308; piano proficiency.

499 SENIOR RECITAL 0 credits *S/U only*
(a) Applied music. Full recital. (b) Music education. One-half recital.

618 VOCAL REPERTORY COACHING (1 + 0) 1 credit
Performance of art song literature of all styles and periods. Emphasis on performance of complete cycles and on contemporary song literature. Open to vocalists and pianists. Maximum of 12 credits each.

621 ADVANCED INSTRUMENTAL PERFORMANCE (0 + 3) 1 credit
Offered for (a) marching and concert band, (b) symphonic band and wind ensemble, (c) university orchestra, or (d) jazz improvisation. Prerequisite: prior college orchestra or band experience and superior ability as a performer. Maximum of 12 credits each.

627 ADVANCED CHORAL PERFORMANCE (0 + 3) 1 credit
Study and performance of representative choral music of all periods, including major choral works. Appearance in concerts locally and on tour required, as well as work beyond ensemble participation, such as that of assistant conductor, section leader or soloist. Offered for (a) concert choir, or (b) symphonic choir. Maximum of 12 credits.

705 ADVANCED OPERA PERFORMANCE 1 or 2 credits
Performance of major roles in University Opera productions. Maximum of 12 credits.

709 CONTEMPORARY THEORY AND PRACTICE (3 + 0) 3 credits
Advanced harmonic practice and contemporary analytical procedures concentrating on music since 1900. Prerequisite: MUS 301-302.

721 ADVANCED CHORAL CONDUCTING (2 + 0) 2 credits
Skills required for effective direction of choral groups. Prerequisite: MUS 322 or equivalent. Maximum of 4 credits.

722 ADVANCED INSTRUMENTAL CONDUCTING (2 + 0) 2 credits
Advanced techniques of instrumental conducting. The techniques of inter-

pretation and study of band and orchestra scores. Prerequisite: MUS 322 or equivalent. Maximum of 4 credits.

730 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Bibliography and research methods in music.

731 ADVANCED MUSIC HISTORY (3 + 0) 3 credits
Intensive study of western music from the Medieval, Renaissance and Baroque periods. Prerequisite: MUS 201-203.

732 ADVANCED MUSIC HISTORY (3 + 0) 3 credits
Intensive study of western music from the Classical, Romantic and Modern periods. Prerequisite: MUS 201-202.

740 MUSIC EDUCATION RESEARCH MATERIALS AND TECHNIQUES (3 + 0) 3 credits
Introduction to music education research literature, techniques, interpretation of research findings, research design in descriptive, experimental and philosophical studies; use of computer searches. Prerequiste: MUS 349.

741 NEW DEVELOPMENTS IN MUSIC EDUCATION (3 + 0) 3 credits
Significant new directions in elementary and secondary music curricula; impact of Orff, Kodaly, Suzuki and other arts; education approaches. Prerequisite: MUS 349.

749 SECONDARY INSTRUMENT OR VOICE (½ + 0) 1 credit
Individual instruction. Offered in (a) piano, (b) voice, (c) brass, (d) woodwind, (e) string, (f) percussion, (g) organ. Maximum of 12 credits.

790 SEMINAR IN MUSIC 1 to 3 credits
Special problems in music history or theory with their professional implications. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits
For master of music (Plan B) students.

797 THESIS 1 to 6 credits
(a) Research, master of arts, (b) performance, master of music. With approval of the student's committee a professional paper may meet 2 of the 6 performance credits.

Inactive Courses

303 KEYBOARD HARMONY (2 + 0) 2 credits
348 ADVANCED INSTRUMENTAL TECHNIQUES (2 + 0) 2 credits
403 COUNTERPOINT (3 + 0) 3 credits
446 PRECISION DRILL WORKSHOP (1 + 3) 1 credit
700-701 ADVANCED COMPOSITION (2 + 0) 2 credits each
702 THE AESTHETICS AND PHILOSOPHY OF MUSIC (2 + 0) 2 credits
715 STUDIES IN ELIZABETHAN AND TUDOR MUSIC (2 + 0) 2 credits
724 PHILOSOPHY OF MUSIC EDUCATION (2 + 0) 2 credits

NURSING (NURS)

300 SPECIAL TOPICS 1 to 10 credits
Topics may be chosen from one or more of the following: (a) adult nursing, (b) maternal-child nursing, (c) psychiatric/mental health nursing, (d) issues in nursing, (e) foundations of nursing, (f) levels of health care needs. Maximum of 10 credits.

301 HEALTH ASSESSMENT (2 + 3) 1 to 3 credits
Theory of and practice in nursing assessment skills required to provide primary health care.

302 MATERNAL-CHILD SKILLS (1 + 3) 1 to 2 credits
Theory and practice of nursing skills necessary to implement care with childbearing clients, newborns, infants, children, adolescents and developing families in the secondary care setting. Prerequisite: NURS 301. Corequisite: NURS 325, 326.

303 NURSING CARE SKILLS (1 + 3) 2 credits
Theory and practice of psychomotor skills necessary to care for individuals with subacute health care needs. Corequisite: NURS 314.

314 INTRODUCTION TO NURSING (3 + 0) 3 credits
The art and science of nursing. Focus is on nursing theories, historical and ethical issues, and utilization of nursing process. Corequisite: NURS 303.

315 NURSING PRACTICE I (0 + 18) 6 credits
Application of the nursing process to care of individuals in restorative, subacute health care settings. Prerequisite or corequisite: NURS 301, 303, 314.

322 HERITAGE OF NURSING (3 + 0) 3 credits
Social, political, economic, cultural and historical factors influencing nursing as a discipline. Intended for nursing and non-nursing majors.

324 FOUNDATIONS OF NURSING (1 + 0 per credit) 1 or 2 credits
Core concepts derived from applied sciences utilized in professional nursing. Prerequisite: NURS 301, 314, 315.

325 MATERNAL-CHILD NURSING: THEORY (1 + 0 per credit) 1 to 3 credits
Nursing process applied to the care of developing families; maternal-newborn, infants, children, adolescents. Prerequisite: NURS 301, 314, 315.

326 MATERNAL-CHILD NURSING: PRACTICUM (0 + 3 per credit) 1 to 6 credits
Application of the nursing process as it relates to the care of mothers and newborns, infants, children, adolescents. Correlated clinical practicum of Nursing Theory II. Prerequisite: NURS 301, 314. Corequisite: NURS 302, 325.

391 INDEPENDENT STUDY 1 to 6 credits
Opportunity for students to master areas of knowledge through independent organization and assimilation of materials under guidance of faculty advisers.

401 ADULT PSYCHOPHYSIOLOGICAL SKILLS (1 + 3 per credit) 1 or 2 credits
Theory and practice of nursing skills necessary to implement care with acutely ill adults in secondary care settings. Prerequisite: NURS 301, 314, 315. Corequisite: NURS 415, 416.

402 CRITICAL CARE/CHRONIC CARE/LEADERSHIP SKILLS (1 + 3 per credit) 1 or 2 credits
Theory of nursing skills necessary to implement care of clients with critical and chronic health problems; nursing leadership skills.

414 ISSUES IN NURSING (1 + 0 per credit) 1 or 2 credits
Core concepts utilized in health care delivery. Prerequisite: NURS 301, 314, 315.

415 ADULT PSYCHOPHYSIOLOGICAL NURSING: THEORY (1 + 0 per credit) 1 to 3 credits
Examination of the nursing process as it relates to the care of the acutely ill adult and his family. Prerequisite: NURS 301, 314, 315.

416 ADULT PSYCHOPHYSIOLOGICAL NURSING: PRACTICUM (0 + 3 per credit) 1 to 6 credits
Application of the nursing process as it relates to the secondary health care needs of adults and their families. Correlated clinical practicum with Nursing Theory III. Prerequisite: NURS 301, 314. Corequisite: NURS 401, 415.

424 NURSING THEORY IV (1 + 0 per credit) 1 to 5 credits
Nursing process as applied to management of individuals, families, groups, and communities experiencing critical and chronic health problems.

425 NURSING PRACTICE IV (0 + 3 per credit) 1 to 6 credits
Application of the nursing process and leadership experience in management of clients with critical and chronic health problems in acute, critical, community care settings.

430, 630 AGING AND HEALTH (3 + 0) 3 credits
Increases awareness of health issues in aging. Issues include definitions of health, high-risk elderly, and future aging.

444 FUNDAMENTALS OF NURSING RESEARCH (1 + 3 per credit) 1 to 3 credits
Research methodology with specific emphasis on its application to nursing practice, trends, and current issues. Prerequisite: completion of junior year nursing sequence, statistics completed or taken concurrently.

445 NURSING RESEARCH PRACTICUM (1 + 3 per credit) 2 or 3 credits
Practicum in ongoing research projects developed in NURS 444. Emphasis on data collection methods, analysis, interpretation, and report writing. Prerequisite: NURS 444.

490, 690 SPECIAL PROBLEMS AND PRACTICES IN NURSING 1 to 10 credits
Individual or group study in areas relevant to nursing theory and/or practice. Maximum of 10 credits.

491 INDEPENDENT STUDY 1 to 6 credits
(See NURS 391 for description.)

701 ROLE OF THE NURSE ADMINISTRATOR (3 + 0) 3 credits
Functions of the nurse administrator in any health care organization are analyzed and appraised for predicted application.

703 ROLE OF THE NURSE EDUCATOR (3 + 0) 3 credits
Learning theories, principles of curriculum development and evaluation, teaching methods and modern technology are within the teaching role of the nurse. Prerequisite: NURS 706.

704 PRACTICUM IN NURSING EDUCATION (0 + 9) 3 credits
Application of teaching/learning principles and synthesis of the nurse educator role in vocational or technical nursing education, hospital inservice or patient education programs. Prerequisite or corequisite: NURS 703.

706 THEORETICAL FOUNDATIONS OF NURSING (3 + 0) 3 credits
Analysis of conceptual nursing frameworks with focus on issues related to theory development in nursing.

708 NURSING THEORIES AND FAMILY HEALTH PATTERNS (3 + 0) 3 credits
Analysis of functional and dysfunctional family health patterns in relation to nursing practice. Synthesis of nursing and family theories with emphasis on nursing interventions. Prerequisite: NURS 706. Corequisite: NURS 710.

720 RESEARCH IN NURSING (2 + 3) 3 credits
Introduction to process of scientific inquiry and literature of nursing research. Includes development of research proposal. Prerequisite: NURS 706.

721 CLINICAL PHENOMENA I(3 + 0) 3 credits
Analysis of models of health focusing on human responses to illness/transitions throughout the life span. Prerequisite or corequisite: NURS 708.

722 ADVANCED NURSING PRACTICE I: ADULT HEALTH (0 + 9) 3 credits
Clinical practicum focusing on patterns of human responses to illness/transitions in adults. Emphasis on explanatory decisions related to adult health problems. Prerequisite: NURS 721. Prerequisite or corequisite: advanced physiology cognate.

723 ADVANCED NURSING PRACTICE I: PSYCHIATRIC/MENTAL HEALTH (0 + 9) 3 credits
Clinical practicum focusing on patterns of human responses to stress throughout the life span. Emphasis on explanatory decisions related to psychosocial problems. Prerequisite: NURS 721. Prerequisite or corequisite: advanced social/behavioral cognate.

724 ADVANCED NURSING PRACTICE I: CHILDREARING FAMILY (0 + 9) 3 credits
Clinical practicum focusing on patterns of human responses to illness or transitions in childrearing families. Emphasis on explanatory decisions related to childbearing or childrearing. Prerequisite: NURS 721. Prerequisite or corequisite: advanced physiology cognate.

730 THEORETICAL FOUNDATIONS FOR CHANGE (3 + 0) 3 credits
Exploration and analysis of current health issues affecting advanced nursing practice. Emphasis on the nurse as a change agent within health care organizations. Prerequisite: NURS 710, 711.

731 CLINICAL PHENOMENA II (3 + 0) 3 credits
Continuation of analysis of human responses to illness/transitions throughout the life span in specialty areas of clinical nursing practice. Prerequisite: NURS 722 or 723 or 724.

732 ADVANCED NURSING PRACTICE II: ADULT HEALTH (0 + 9) 3 credits
Clinical practicum with continued focus on patterns of human responses to illness/transitions in adults. Emphasis on analysis of managerial decisions related to adult health problems. Prerequisite: NURS 722. Prerequisite or corequisite: NURS 731.

733 ADVANCED NURSING PRACTICE II: PSYCHIATRIC/MENTAL HEALTH (0 + 9) 3 credits
Clinical practicum with continued focus on patterns of human responses to stress throughout the life span. Emphasis on analysis of managerial decisions related to psychosocial problems. Prerequisite: NURS 723. Prerequisite or corequisite: NURS 731.

734 ADVANCED NURSING PRACTICE II: CHILDREARING FAMILY (0 + 9) 3 credits
Clinical practicum, continued focus on patterns of human responses to illness/transistions in childrearing families. Emphasis on analysis of managerial decisions related to childbearing/childrearing. Prerequisite: NURS 724. Prerequisite or corequisite: NURS 731.

735 ADVANCED NURSING PRACTICE II: NURSING ADMINISTRATION (0 + 9) 3 credits
Application and testing of organizational and administrative theory within a selected health care setting. Prerequisite: NURS 722 or 723 or 724.

742 ADVANCED NURSING PRACTICE III: ADULT HEALTH (0 + 9) 3 credits
Synthesis of clinical specialist role in adult health. Analysis of managerial decisions; emphasis on planning, implementation, evaluation of nursing interventions. Includes clinical conference. Prerequisite: NURS 732.

743 ADVANCED NURSING PRACTICE III: PSYCHIATRIC/MENTAL HEALTH (0 + 9) 3 credits
Synthesis of clincial specialist role in psychiatric/mental health. Analysis of managerial decisions; emphasis on planning, implementation, evaluation of nursing interventions. Includes clinical conference. Prerequisite: NURS 733.

744 ADVANCED NURSING PRACTICE III: CHILDREARING FAMILY (0 + 9) 3 credits
Synthesis of clinical specialist role with childrearing family. Analysis on managerial decisions; emphasis on planning, implementation, evaluation of nursing interventions. Includes clinical conference. Prerequisite: NURS 734.

745 ADVANCED NURSING PRACTICE III: NURSING ADMINISTRATION (0 + 9) 3 credits
Synthesis of the nurse administator role. Analysis of managerial decisions; emphasis on planning, implementation, evaluation of administrative interventions. Includes clinical conference. Prerequisite: NURS 735.

791 SPECIAL TOPICS 1 to 3 credits
Guided literature review and analysis.

793 INDEPENDENT STUDY 1 to 6 credits
Independent research or project in an area of special interest.

794 COLLOQUIA 3 credits
Discussion of advanced selected topics by students and faculty.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits
Required of all students who wish to complete a master of science degree in nursing under Plan B.

797 THESIS 1 to 6 credits
Required of all students who wish to complete a master of science degree in nursing under Plan A.

NUTRITION (NUTR)

121 HUMAN NUTRITION (3 + 0) 3 credits
The principles of nutrition and their application to well-balanced diets. Four laboratory sessions are included each semester.

223 PRINCIPLES OF NUTRITION (3 + 0) 3 credits
Nutrient functions and bases for nutrient requirement at the cellular level. Prerequisite: CHEM 101, 142.

225 PRINCIPLES OF FOOD SCIENCE (2 + 3) 3 credits
Principles of food preparation based on physical and chemical changes. Development of professional skills in (a) manipulation of variables using class representative foods, and (b) critical evaluation of food quality.

273 FOOD AND NUTRITION (3 + 0) 3 credits
Influences of economic, cultural, aesthetic and sociopsychological aspects of food habits on dietary patterns and nutrition of individuals.

320 QUANTITY FOOD PURCHASING (2 + 3) 3 credits
Food purchasing for food service systems, understanding of cost factors, marketing factors, food laws, quality standards and basic manufacturing processes.

321 FOOD SERVICE SYSTEMS MANAGEMENT (3 + 0) 3 credits
Organization and operation of food services; management principles; food service personnel; labor laws; regulatory agencies; food cost contol; record keeping.

325 NUTRITIONAL ANTHROPOLOGY (3 + 0) 3 credits
Historical roots and current manifestations of food habits and dietary patterns in different cultures and ethnic groups.

400, 600 SPECIAL PROBLEMS 1 to 5 credits
Individual study or research in nutrition. Maximum of 10 credits.

419, 619 PRINCIPLES OF HUMAN NUTRITION AND METABOLISM (3 + 0) 3 credits
Major dietary nutrients and follows their digestion, absorption, metabolism, regulation and role in human disease states. Prerequisite: NUTR 223.

421, 621 READINGS IN FOODS AND NUTRITIONS (2 + 0) 2 credits
Intensive investigation of current research in foods and nutrition through critical evaluation of recent studies. Prerequisite: 15 credits of physical or behavioral science. Maximum of 4 credits.

422, 622 NUTRITION IN THE LIFE CYCLE (1 + 0) 1 credit
Relationship between nutrient needs, development and feeding practices throughout life cycle: (a) pregnancy and lactation, (b) infancy, (c) childhood, (d) adolescence, (e) adults 20-40 years, (f) middle and later life. Prerequisite: introductory nutrition course. Maximum 1 credit per topic.

425, 625 BEVERAGES IN THE HOSPITALITY INDUSTRY (3 + 0) 3 credits
Survey of the history, classification, production, storage and service of wines, beers and spirits. Sensory evaluation of beverage quality and characteristics. Prerequisite: must be 21 or older.

426, 626 DIET THERAPY (3 + 0) 3 credits
Modifications of the normal diet for the prevention and treatment of diseases. Prerequisite: NUTR 223 plus approved biochemistry or 15 credits of life science.

427, 627 NUTRITIONAL ASSESSMENT AND PHYSICAL PERFORMANCE (2 + 2) 3 credits
Current concepts including dietary evaluation, anthropometric, clinical and biochemical techniques; evaluation of weight control techniques; examination of relationship between nutrition and physical performance. Prerequisite: NUTR 121 or 223.

433, 633 VITAMINS AND MINERALS (3 + 0) 3 credits
Metabolism of micronutrients including absorption, transport, storage, interaction and excretion; historical perspectives, dietary requirements, effects of excesses and deficiencies, and role in health and disease. Prerequisite: NUTR 223.

440, 640 ADVANCED NUTRITION (3 + 0) 3 credits
Examination of physiologic/biochemical functions of major nutrients. Prerequisite: NUTR 223.

470 PREPROFESSIONAL INTERNSHIP 3 credits *S/U only*
Work with one or more community agencies or firms that utilize home economics subject matter as they work with clientele. Combines a seminar with supervised field experience.

700 INDEPENDENT STUDY: RESEARCH AND CLINICAL PROBLEM SOLVING 1 to 3 credits

725 NUTRITION AND HEALTH (3 + 0) 3 credits
Critical review of research methods. Prerequisite: NUTR 419.

726 SEMINAR IN NUTRITION (1 + 0) 1 credit
An examination of current nutrition issues and research foci. Maximum of 3 credits.

727 NUTRITION PRACTICUM (0 + 3 per credit) 1 to 3 credits
Selected clinical nutrition experiences with faculty guidance and supervision. Prerequisite: NUTR 725.

729 COLLOQUIUM (1 + 0) 1 credit
Presentation and analysis of original research. Maximum of 4 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

OBSTETRICS AND GYNECOLOGY (OBGY)

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experiences with preceptorial supervision and daily conferences to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing obstetrics and gynecology.

461, 661 ELECTIVES 2 to 8 credits
Elective experiences in the major subspecialities of obstetrics and gynecology including: (a) advanced gynecology, (b) obstetrics/gynecology pathology, (c) clinical obstetrics, (d) gynecological oncology, (e) obstetrics/gynecology radiology, (f) office obstetrics/gynecology, (g) surgical anatomy, (h) societal perceptions, (j) bioethical issues, (k) history of obstetrics/gynecology, (m) nutrition in pregnancy, (n) nutrients in prenatal care, (p) obstetrical/gynecological literature. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

490, 690 INDEPENDENT STUDY 1 to 4 credits
Individualized in-depth study of a specific area of obstetrics and gynecology.

PATHOLOGY AND LABORATORY MEDICINE (PATH)

472, 672 MEDICAL PHOTOGRAPHY AND PHOTOMICROGRAPHY (2 + 3) 3 credits
Application of sophisticated macroscopic and microscopic photographic techniques and methods to depict normal and abnormal gross and microscopic features. Primarily for medical students.

490, 690 INDEPENDENT STUDY 1 to 4 credits
Research in subject of interest to pathology with approval of departmental committee. Medical students only. Maximum of 8 credits.

601 GENERAL HUMAN PATHOLOGY (3 + 3) 4 credits
Basic pathology including reactions to disease, i.e., inflammation, repair, neoplasia, circulatory disturbances, cyrogenetics, and forensic principles, demonstrated by gross and microscopic laboratory exercises. Prerequisite: ANAT 601, PHSY 601.

602 SYSTEMIC HUMAN PATHOLOGY (4 + 6) 6 credits
General pathophysiological principles applied to diseases of organ systems. Laboratory consists of seminars, autopsies, CPCs and in-depth study of gross and microscopic appearances of diseased organs. Prerequisite: PATH 601.

603 LABORATORY MEDICINE I (1 + 3) 2 credits
Theory and practical applications for ordering and interpreting laboratory tesrs. Special emphasis on clinical chemistry and microbiology. Involves performing certain simple laboratory tests.

604 LABORATORY MEDICINE II (2 + 0) 2 credits
Theory and practical applications for otdering and interpreting laboratory tests. Special emphasis on clinical chemistry and microbiology. Involves performing certain simple laboratory tests.

PEDIATRICS (PEDI)

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing pediatrics.

461, 661 ELECTIVES 2 to 8 credits each
Elective experiences in the major pediatrics subspeciality areas including: (a) adolescent medicine, (b) behavioral pediatrics, (c) neonatal-perinatal medicine, (f) allergy and immunology, (g) cardiology, (h) neonatal medicine, (j) endocrinology, (k) perinatology, (m) pediatric hematology/onocology, (n) PICU/pulmonary. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

490, 690 INDEPENDENT STUDY 1 to 3 credits

491, 691 CARE OF THE HANDICAPPED CHILD (3 + 25) 2 credits
Participation in the care of children with handicapping conditions for one week in July at Camp Galilee in Glenbrook, Nevada. For any student enrolled in the School of Medicine.

PHARMACOLOGY (PHAR)

401, 601 MEDICAL PHARMACOLOGY I (9 + 0) 9 credits
Principles, mechanisms of action, therapeutic indications, contra-indications, side-effects and toxic manifestations of pharmacological agents. Prerequisite: B CH 401, PHYS 402 or equivalent.

492, 692 PROBLEMS IN CLINICAL PHARMACOLOGY AND THERAPEUTICS (1 + 0 per credit) 1 to 4 credits
Discussion and literature search of therapeutic problems in specific case histories; indications and contraindications of drug therapy in relation to basic pharmacologic properties; expected beneficial results, possible side effects, adverse reactions, and drug interactions.

495, 695 SEMINAR (1 + 0) 1 credit
Presentation on special topics in pharmacology. Maximum of 2 credits.

497, 697 SELECTED TOPICS (1 to 3 + 0) 1 to 4 credits
Emphasizes current literature of pharmacologic interest. Maximum of 8 credits. Prerequisite: background course in pharmacology.

499, 699 DIRECTED RESEARCH (0 + 3 per credit) 1 to 4 credits
Guided research in any of the areas of mutual interest to the student and faculty. Maximum of 8 credits.

730 CELLULAR AND MOLECULAR PHARMACOLOGY (3 + 0) 3 credits
Basic topics in cellular physiology and molecular mechanisms of drug action. Prerequisite: PHAR 601.

740 NEUROEFFECTOR PHARMACOLOGY (3 + 0) 3 credits
Basic topics in neurotransmission including neuromuscular pharmacology and autonomic pharmacology. Methods and current problems applied to the study of neuroeffector systems including nerves and muscles.

790 GRADUATE SEMINAR (1 + 0) 1 credit
Reports of current research. Prerequisite: major in pharmacology or cell and molecular biology.

793 INDEPENDENT STUDY 1 to 6 credits
Prerequisite: major in pharmacology or cell and molecular biology.

794 COLLOQUIM (1 + 0) 1 credit
Presentation and analysis of original research. Prerequisite: major in pharmacology or cell and molecular biology. Maximum of 8 credits.

797 THESIS 1 to 6 credits
Prerequisite: major in pharmacology or cell and molecular biology.

799 DISSERTATION 1 to 24 credits
Prerequisite: major in pharmacology or cell and molecular biology.

PHILOSOPHY (PHIL)

110 INTRODUCTION TO PHILOSOPHY (3 + 0) 3 credits
asic problems in different areas of philosophy such as ethics, political theory, etaphysics and epistemology.

2 WORLD RELIGIONS (3 + 0) 3 credits
ain moral and religious doctrines of Hinduism, Buddhism, Confusianism, oism, Islam, Judaism and Christianity.

4 INTRODUCTION TO SYMBOLIC LOGIC (3 + 0) 3 credits
rinciples of correct reasoning, using modern symbolic techniques of the propositional calculus and simple quantification theory.

125 INTRODUCTION TO ETHICAL THEORY (3 + 0) 3 credits
Representative classical ethical theories, e.g., Aristotle, Hume, Kant, utilitarianism, emotive ethics.

130 INTRODUCTION TO METAPHYSICS (3 + 0) 3 credits
Selected problems concerning human nature and reality, e.g., the mind-body problem, freedom and determinism, the existence of God, space and time.

200 CRITICAL THINKING AND REASONING (3 + 0) 3 credits
Nonsymbolic introduction to logical thinking in everyday life, law, politics, science, advertising; common fallacies; the uses of language, including techniques of persuasion.

202 INTRODUCTION TO THE PHILOSOPHY OF THE ARTS
(3 + 0) 3 credits
Topics include aesthetic standards, artistic creativity and the nature of art and its role in society.

203 INTRODUCTION TO EXISTENTIALISM (3 + 0) 3 credits
Readings from Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger. An examination of the existentialist concepts "being" and "nonbeing," "estrangement," "dread," "anxiety" and "freedom."

207 INTRODUCTION TO SOCIAL AND POLITICAL PHILOSOPHY
(3 + 0) 3 credits
Theories concerning the nature of society and political structure. Readings from classical and contemporary philosophers.

211 ANCIENT PHILOSOPHY (3 + 0) 3 credits
Major figures in history of philosophy from the pre-Socratics through the early medieval thinkers.

212 MEDIEVAL PHILOSOPHY (3 + 0) 3 credits
Major figures in philosophy from the early Church fathers to Ockham.

213 MODERN PHILOSOPHY (3 + 0) 3 credits
Philosophy from the Renaissance through the 18th century. Readings from Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume and Kant.

224 INTRODUCTION TO PHILOSOPHY OF SCIENCE (3 + 0) 3 credits
Philosophical problems and implications of scientific inquiry, such as the nature of laws, theories, explanations, scientific revolutions, limits of knowledge, space and time.

301-302 IDEAS, VALUES AND CULTURES I AND II
(3 + 0) 3 credits each
Ideas, values and cultures as they relate to concepts of man, society and the cosmos. Includes Western, non-Western and women's primary source material.

308 INTRODUCTION TO FOUNDATIONS OF MATHEMATICS
(3 + 0) 3 credits
(See MATH 308 for description.)

314 19TH CENTURY PHILOSOPHY (3 + 0) 3 credits
Readings from Hegel, Schopenhauer, Marx, Nietzsche, Bentham, Mill, Bradley and others. Prerequisite: 3 credits in philosophy.

315 20TH CENTURY PHILOSOPHY (3 + 0) 3 credits
Significant movements in 20th century philosophy such as phenomenology, pragmatism, logical positivism, British analytic philosophy, and the later Wittgenstein and his followers. Prerequisite: 3 credits in philosophy.

316 AMERICAN PHILOSOPHY (3 + 0) 3 credits
Development of philosophical thought in America with particular emphasis on pragmatism. Prerequisite: 3 credits in philosophy.

323 PHILOSOPHY OF RELIGION (3 + 0) 3 credits
Nature and validity of religious experience. Topics include various conceptions of the nature of God, His existence, the problems of immortality and evil and the possibility of religious knowledge. Prerequisite: 3 credits in philosophy.

325 PHILOSOPHY OF HISTORY (3 + 0) 3 credits
Discussion of historical methods, the idea of progress and meaning in history. Prerequisite: 3 credits in philosophy.

326 SYMBOLIC LOGIC (3 + 0) 3 credits
Developments in modern logic, including characteristics of deductive systems, analysis of propositions and techniques of deduction. Prerequisite: PHIL 114. (Same as MATH 307.)

401, 601 ETHICS (3 + 0) 3 credits
Detailed discussion of major ethical theories. Prerequisite: 6 credits in philosophy.

402, 602 AESTHETICS (3 + 0) 3 credits
Investigation of modern trends in aesthetics. Prerequisite: 6 credits in philosophy.

403, 603 THEORY OF KNOWLEDGE (3 + 0) 3 credits
Examination of the nature of knowledge emphasizing the problem of our knowledge of the external world. Prerequisite: 6 credits in philosophy.

404, 604 METAPHYSICS (3 + 0) 3 credits
Theories concerning the nature of reality. Prerequisite: 6 credits in philosophy.

405, 605 PHILOSOPHY OF MIND (3 + 0) 3 credits
Various theories concerning the relation between mind and body. Other topics may include an analysis of thinking, intending and a discussion of the possibility of private languages, etc. Prerequisite: 6 credits in philosophy.

406, 606 PHILOSOPHY OF LANGUAGE (3 + 0) 3 credits
Examination of selected problems in the philosophy of language such as meaning, reference, truth and analyticity. Prerequisite: 6 credits in philosophy.

407, 607 SOCIAL AND POLITICAL PHILOSOPHY (3 + 0) 3 credits
Detailed discussion of theories of society and the nature of political obligation. Prerequisite: 6 credits in philosophy.

410, 610 PLATO (3 + 0) 3 credits
Development of Plato's thought, focusing upon the dialogues of his middle and late period. Prerequisite: 6 credits in philosophy.

411, 611 ARISTOTLE (3 + 0) 3 credits
Detailed study of selected major works in Aristotle. Prerequisite: 6 credits in philosophy.

413, 613 BRITISH EMPIRICISTS (3 + 0) 3 credits
Detailed study of the major writings of Locke, Berkeley and Hume. Prerequisite: 6 credits in philosophy.

414, 614 CONTINENTAL RATIONALISTS (3 + 0) 3 credits
Detailed study of the major writings of Descartes, Spinoza and Leibniz. Prerequisite: 6 credits in philosophy.

415, 615 KANT (3 + 0) 3 credits
Intensive study of the *Critique of Pure Reason* and related works. Prerequisite: 6 credits in philosophy.

465, 665 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES
(3 + 0) 3 credits

Interdepartmental course examining the basic presuppositions and procedures in the physical sciences. (Same as PHYS 465.)

481, 681 PROBLEMS IN THE HISTORY AND PHILOSOPHY OF SCIENCE (3 + 0) 3 credits
(See HIST 481, 681 for description.)

494, 694 SELECTED TOPIC IN PHILOSOPHY (3 + 0) 3 credits
Major topic or issue in philosophy. May be repeated to a maximum of 9 credits when content differs. Prerequisite: 6 credits in philosophy.

499, 699 INDIVIDUAL RESEARCH 1 to 6 credits
Pursuit by the advanced student of special interests in philosophy. Maximum of 12 credits.

708 SEMINAR IN PHILOSOPHICAL PSYCHOLOGY (3 + 0) 3 credits
(See PSY 708 for description.)

711 SEMINAR IN MAJOR FIGURES IN THE HISTORY OF PHILOSOPHY (3 + 0) 3 credits
Maximum of 9 credits when content differs.

712 SEMINAR IN MAJOR MOVEMENTS IN THE HISTORY OF PHILOSOPHY (3 + 0) 3 credits
Maximum of 9 credits when content differs.

713 SEMINAR IN PHILOSOPHICAL PROBLEMS (3 + 0) 3 credits
Intensive analysis of major topic or issue in philosophy. Maximum of 9 credits when content differs.

737 TEACHING METHODS IN PHILOSOPHY (1 + 0) 1 credit
Effective procedures of teaching philosophy on the college or university level. Maximum of 4 credits.

793 INDEPENDENT STUDY 1 to 6 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
Maximum of 6 credits.

Inactive Courses

321 PHILOSOPHY OF EDUCATION (3 + 0) 3 credits
794 COLLOQUIA (3 + 0) 3 credits

PHYSICS (PHYS)

Stated course prerequisites must be observed unless an equivalent preparation is approved by the department.

100 INTRODUCTORY PHYSICS (3 + 0) 3 credits
Concise treatment of mechanics, electricity, magnetism, heat, light, sound, relativity, and quantum mechanics. Knowlege of basic algebra and geometry is essential.

106 ENVIRONMENTAL SCIENCE (3 + 0) 3 credits
Introduction for the nonspecialist to the principles which control the behavior of atmosphere and oceans; circulation of atmosphere and oceans; weather and climate; weather prediction and its economic implications; clouds and precipitation; pollution of the atmosphere; application to urban problems.

109 PLANETARY ASTRONOMY (3 + 0) 3 credits
Descriptive introduction to current concepts of the solar system. Modern observational techniques and their results. Supplementary use of telescopes and planetarium facilities. Elementary algebra is occasionally used.

110 STELLAR ASTRONOMY (3 + 0) 3 credits
Descriptive introduction to stellar and galactic systems. The life cycle of stars. Theories of the universe and its formation. Supplementary use of telescopes and planetarium facilities. Elementary algebra is occasionally used.

117 METEOROLOGY (3 + 0) 3 credits
Description of the behavior of the atmosphere with special emphasis on the physical processes involved in the weather.

151-152 GENERAL PHYSICS (3 + 0) 3 credits each
General physics primarily for students in arts and science, medicine, and agriculture. Lectures, experimental demonstrations and problem work. Prerequisite: elementary algebra, geometry, knowledge of trigonometry.

153-154 GENERAL PHYSICS LABORATORY (0 + 2) 1 credit each
To accompany PHYS 151-152. Experimental work, largely quantitative in character, designed to illustrate fundamental physical principles and to develop skill and accuracy in methods of physical measurement. Prerequisite: elementary algebra, geometry, knowledge of trigonometry.

201 PHYSICS FOR SCIENTISTS AND ENGINEERS I (3 + 0) 3 credits
Discussions of vectors, rectilinear and plane motion, particle dynamics, work and energy, momentum, rotational mechanics, oscillations, gravitation, fluids, elastic waves and sound. Prerequisite: MATH 215 or 216.

202 PHYSICS FOR SCIENTISTS AND ENGINEERS II (3 + 0) 3 credits
Discussions of electric charge, field, potential, current, dielectrics, circuit elements, magnetic fields and materials, electromagnetic oscillations, light, reflection, optical systems, interference, diffraction, and polarization. Prerequisite: PHYS 201.

203 PHYSICS FOR SCIENTISTS AND ENGINEERS III (3 + 0) 3 credits
Discussions of thermodynamic laws, kinetic theory, relativity, wave aspects of particles, quantum mechanics, statistical mechanics, band theory, semiconductors, radioactivity, nuclear physics, elementary particles. Prerequisite: PHYS 202, MATH 215, 216.

204 PHYSICS FOR SCIENTISTS AND ENGINEERS LABORATORY I (0 + 2) 1 credit
Laboratory experiments on vectors, motion, particle, dynamics, work and energy, momentum, rotational mechanics, oscillatory motions, wave motion and sound. Prerequisite: MATH 215 or 216.

205 PHYSICS FOR SCIENTISTS AND ENGINEERS LABORATORY II (0 + 2) 1 credit
Laboratory experiments on electric charge, field, potential circuit elements, magnetic fields, light, reflection, refraction, interference, diffraction and polarization. Prerequisite: PHYS 201.

206 PHSYICS FOR SCIENTISTS AND ENGINEERS III (0 + 3) 1 credit
Laboratory experiments on thermodynamic laws, kinetic theory, wave aspects of particles, quantum mechanics, solid state physics, semiconductors, radioactivity, nuclear physics and elementary particles. Prerequisite: PHYS 202, MATH 215, 216.

293 DIRECTED STUDY 1 to 3 credits
Individual study conducted under the direction of a faculty member. Maximum of 6 credits. Prerequisite: PHYS 151 or 201.

351 MECHANICS (3 + 0) 3 credits
Newtonian mechanics. Mathematical formulation of dynamics of a particle and systems of particles including applications to atomic physics. Prerequisite: general physics and calculus. Differential equations desirable.

352 MECHANICS (3 + 0) 3 credits
Continuation of PHYS 351. Mechanics of continuous media using Fourier series. Introduction to generalized coordinates including methods of Lagrange and Hamilton. Prerequisite: PHYS 351.

355 PHYSICAL ELECTRONICS (2 + 3) 3 credits
Physical principles of electronic instrumentation used in physics. Emphasis on modern scientific instrumentation, components, circuits, active elements, systems. Prerequisite: general physics and calculus. Differential equations concurrently.

361-362 LIGHT AND PHYSICAL OPTICS (3 + 0) 3 credits each
Topics in physical optics including interference, diffraction and polarization with applications. Nature of light. Survey of geometrical optics and optical instruments. Prerequisite: general physics and calculus.

363-364 OPTICS AND SPECTROSCOPY LABORATORY (0 + 3) 1 credit each
Basic optical measurements. Theory and use of spectrometers, spectrograph and interferometers. Excitation and recording of emission spectra. Corequisite: PHYS 361-362.

411, 611 INTRODUCTION TO ATMOSPHERIC PHYSICS (3 + 0) 3 credit
Atmospheric scattering of light; visibility; optical phenomena. Elements of radiative heat transfer and of cloud physics. Description of the upper atmosphere. Prerequisite: PHYS 203 or 152, 154, MATH 310, 320.

412, 612 INTRODUCTION TO AIR POLLUTION (3 + 0) 3 credits
Aerosol and gas phase classification and measurement; regulatory requirements and control technology. Application to smog, acid deposition, the ozone layer. Local and long range transport. Prerequisite: PHYS 151, 152, 20 or equivalent.

421, 621 MODERN PHYSICS I (3 + 0) 3 credits
Introduction to relativity and quantum mechanics. Prerequisite: PHYS 203 equivalent, differential equations. Advanced calculus desirable.

422, 622 MODERN PHYSICS II (3 + 0) 3 credits
Applications of relativity and quantum mechanics to atomic and nuclear structure. Prerequisite: PHYS 421.

423, 623 ADVANCED LABORATORY TECHNIQUES I (0 + 3) 1 credit
Application of contemporary devices for the acquisition and interpretation of data obtained from physical systems encountered in atomic, nuclear, solid state and particle physics. Prerequisite: PHYS 203, 206.

424, 624 ADVANCED LABORATORY TECHNIQUES II (0 + 3) 1 credit
Continuation of PHYS 423, 623. Prerequisite: PHYS 203, 206.

425, 625 THERMAL PHYSICS (3 + 0) 3 credits
Statistical basis of thermodynamics. Applications to fundamental processes; entropy, distribution functions, classical and quantum gases, phase transformations, low temperature phenomena. Prerequisite: MATH 217, PHYS 203.

426, 626 INTRODUCTION TO SOLID STATE PHYSICS (3 + 0) 3 credits
Most important properties of solids, including crystal symmetries, lattice, vibrations, conductivity, magnetism, transport phenomena, the free electron model and band theory. Prerequisite: PHYS 421.

466, 666 INTRODUCTION TO MICROCOMPUTER INTERFACING (2 + 3) 3 credits
Introductory theory combined with laboratory work involving digital electronics, microcomputer programming, analog to digital conversion and data acquisition with microcomputers. Prerequisite: PHYS 355.

473-474, 673-674 ELECTRICITY AND MAGNETISM (3 + 0) 3 credits each
Electrostatics, magnetic fields, and electomagnetism. Maxwell's equations, theory of metallic conduction, motion of charged particles, radiation. Prerequisite: general physics, differential equations.

483-484, 683-684 SPECIAL TOPICS IN PHYSICS (1 to 3 + 0) 1 to 3 credits each
Topics of current interest which are not incorporated in regular offerings. Prerequisite: PHYS 201, 202 or 203.

693, 693 SPECIAL PROBLEMS 1 to 3 credits each
Laboratory or research work not specifically given in courses listed above. Maximum of 6 credits.

701 MATHEMATICAL PHYSICS (3 + 0) 3 credits
Designed to acquaint the student with some of the specific mathematical preliminaries to advanced study of theoretical physics. Prerequisite: graduate standing in physics.

702 CLASSICAL MECHANICS (3 + 0) 3 credits
Newtonian mechanics from an advanced point of view. Variational principles, Lagrange's and Hamilton's equations, central forces, rigid body motion, canonical transformations, Hamilton-Jacobi theory, small oscillations. Prerequisite: graduate standing in physics, PHYS 701.

704 COMPUTATIONAL TECHNIQUES IN PHYSICAL SCIENCE (3 + 0) 3 credits
Quantitative solutions of selected problems in classical, modern and atmospheric physics to develop skills in problem formulation, computer application and graphical output. Prerequisite: Fortran programming skill.

706 COMPUTING AND STATISTICAL SIMULATION (2 + 0) 2 credits
Computer simulation of random processes obeying specified probability distributions and time series frequency and relationships; theoretical derivations, coding structure and correct use of the computer. Prerequisite: Acquaintance with computers and Fortran coding skill.

707 SOLID STATE PHYSICS (3 + 0) 3 credits
Solid state properties related to the crystal lattice and the behavior of electrons in the lattice: band structure, electrontransport, phonons, X-ray diffraction, magnetism. Prerequisite: undergraduate solid state physics.

708 NUCLEAR PHYSICS (3 + 0) 3 credits
Nuclear properties including forces, moments and decay modes. Scattering, reactions and nuclear models. Prerequisite: graduate standing in physics.

712 ELECTROMAGNETIC THEORY (3 + 0) 3 credits
Relativistic formulation of electrodynamics. Motion of charges in electromagnetic fields. Radiation theory, cavities, wave guides. Wave scattering, diffraction, refraction, and dispersion. Multipole fields. Prerequisite: PHYS 701, 702.

721 QUANTUM THEORY I (3 + 0) 3 credits
Development of quantum theory. Schroedinger equation, operators, expectation values. Matrix formalism of Heisenberg, eigenvalue problems, wave packets, conjugate variables and uncertainty principle. Solution of wave equation for square potentials, harmonic oscillator and hydrogen-like atoms. Prerequisite: graduate standing in physics.

722 QUANTUM THEORY II (3 + 0) 3 credits
Peturbation theory, both time-independent and time-dependent. Degeneracy, interaction of matter with radiation, selection rules. Scattering theory. Born approximation and other approximation methods. Dirac notation and an introduction to spin. Prerequisite: PHYS 721.

732 STATISTICAL MECHANICS (3 + 0) 3 credits
Ensembles, fluctuations and statistical basis of laws of thermodynamics. Distribution functions with application to cooperative phenomena, partition functions and quantum statistics. Prerequisite: graduate standing in physics.

740 FLUID DYNAMICS (3 + 0) 3 credits
Navier-Stokes equations; viscous and inviscid fluids; vorticity; boundary layer theory. Theoretical and numerical techniques; application to incompressible flow in the atmosphere. Prerequisite or corequisite: PHYS 701.

741 ATMOSPHERIC MOTIONS I (3 + 0) 3 credits
General circulation, meteorological analysis, hurricane, tropical and extra tropical cyclones. Prerequisite or corequisite: PHYS 701, 740.

742 ATMOSPHERIC MOTIONS II (3 + 0) 3 credits
Principles of fluid dynamics applied to the atmosphere. Analysis of atmospheric models used in numerical computations for several scales of motion. Prerequisite: PHYS 741.

743 CLOUD AND AEROSOL PHYSICS (3 + 0) 3 credits
Aerosol nucleation, growth and coagulation, cloud droplet and ice crystal nucleation and growth; cloud thermodynamics and chemistry; precipitation and electrification processes; measurement and modeling techniques. Prerequisite: PHYS 701.

745 ATMOSPHERIC TURBULENCE (3 + 0) 3 credits
Mechanical and statistical theory of turbulence. Application to convection, eddy diffusion, temperature, and wind profiles and related topics. Prerequisite: PHYS 742.

748 MEASUREMENT IN THE ATMOSPHERE (3 + 3) 4 credits
Measurement of physically meaningful parameters in a heterogeneous turbulent medium. Direct and remote sensing, data reduction, theory of instrument design. Prerequisite: an upper-division electronics course (PHYS 355 or equivalent) and a working knowledge of computer programming. Prerequisite or corequisite: PHYS 742, 743.

749 PHYSICAL METEOROLOGY (3 + 0) 3 credits
Introduction to radiative computations and diagrams as related to the atmosphere. Interaction of electromagnetic radiation with atmospheric particulates and molecules. Prerequisite: graduate standing in physics.

750 WEATHER MODIFICATION (3 + 0) 3 credits
Physics of precipitation growth and mechanisms of modification of fogs, orographic and cumulus clouds. Aerosol production, chemical composition, delivery and dispersion. Evaluation techniques. Prerequisite: PHYS 743.

761 ATOMIC AND MOLECULAR PHYSICS (3 + 0) 3 credits
Spectra of isolated atoms and atoms in external fields. Coupling of angular moments. Symmetries and spectra of simple molecules. Atomic interaction with electrons and photons. Prerequisite: PHYS 721, 722.

762 PHYSICS OF FUNDAMENTAL INTERACTIONS (3 + 0) 3 credits
Elementary particles, symmetries, and conservation laws. Strong and weak interactions. Applications to nuclear level structure. Prerequisite: PHYS 761. Recommended: PHYS 712.

771 ADVANCED TOPICS (1 to 3 + 0) 1 to 3 credits
Consists of lectures dealing with various aspects of one of the fields listed. (a) dynamics, (b) fluid mechanics, (c) plasma physics, (d) quantum theory, (e) nuclear physics, (f) atomic and molecular physics, (g) electron and ion physics, (h) low-temperature physics, (j) solid and/or liquid state, (k) cosmic rays, (m) relativity, (n) elementary particles, (p) astrophysics, (r) atmospheric physics, (s) geophysics, (t) meteorology of wind and solar energy, (u) air pollution, (v) remote sensing of the atmosphere, (w) cloud electrification, (x) atmospheric aerosol technology. Maximum of 12 credits in different fields. Prerequisite: PHYS 701-702 or 712 or 721-722 or 704, 740.

790 SEMINAR (1 + 0) 1 credit
Recent developments in theoretical and experimental physics. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 6 credits
Special study of advanced topics not specifically in courses or seminars. Maximum of 6 credits. Prerequisite: graduate standing in physics.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

108 INTRODUCTION TO SPACE SCIENCE (3 + 0) 3 credits
311 ENVIRONMENTAL PHYSICS: THE OCEANS AND ATMOSPHERE (3 + 0) 3 credits
391 INTRODUCTION TO ASTROPHYSICS (3 + 0) 3 credits
451-452, 651-652 ACOUSTICS (2 + 0) 2 credits each
455-456, 655-656 PHYSICS OF THE EARTH (3 + 0) 3 credits each
465, 665 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3 + 0) 3 credits
711 ELECTROMAGNETIC THEORY I (3 + 0) 3 credits
744 UPPER ATMOSPHERE (3 + 0) 3 credits

PHYSIOLOGY (PHSY)

426, 626 BIOMEDICAL INSTRUMENTATION (2 + 2) 3 credits
Principles of modern electronic design including microcomputer applications, transducer technology, digital design, interface design, biomedical information systems. Prerequisite: E E 372, 382. (Same as E E 426, 626.)

490, 690 INDEPENDENT STUDY 1 to 4 credits

499, 699 DIRECTED RESEARCH 1 to 4 credits
Guided research in any of the areas of mutual interest to the student and faculty. Maximum of 8 credits.

601 MEDICAL PHYSIOLOGY I (4 + 3) 5 credits
Principles of axonology, muscle physiology, synaptology, autonomic nervous function, and cardiovascular physiology. Prerequisite: B CH 601, ANAT 601.

602 MEDICAL PHYSIOLOGY II (5 + 3) 6 credits
Principles of pulmonary, renal, gastrointestinal, neural, and endocrine function. Prerequisite: PHSY 601.

701 ADVANCED MAMMALIAN SYSTEMS AND ORGANS PHYSIOLOGY I (4 + 3) 5 credits
Principles of axonology, muscle physiology, synaptology, autonomic nervous function, and cardiovascular physiology. Prerequisite: B CH 301, 302; BIOL 366; MATH 215 or equivalent.

702 ADVANCED MAMMALIAN SYSTEMS AND ORGANS PHYSIOLOGY II (5 + 3) 6 credits
Principles of pulmonary, renal, gastrointestinal, neural and endocrine function. Prerequisite: PHSY 701.

790 GRADUATE SEMINAR 1 credit
Reports of current research in physiology for both internal and external researchers.

793 INDEPENDENT STUDY 1 to 6 credits

POLITICAL SCIENCE (P SC)

P SC 101 or 103 is a prerequisite for all other political science courses except P SC 100.

100 CONSTITUTION OF NEVADA (1 + 0) 1 credit
Nevada Constitution, including the historical development of Nevada from Territory to Statehood. Satisfies Nevada Constitution requirement. Not open to students who have obtained credit for P SC 103, 208, or HIST 102, 111, 217. (Offered through Correspondence Division only.)

101 AMERICAN POLITICS: PROCESS AND BEHAVIOR (3 + 0) 3 credits
American government and the discipline of political science; surveys participation, pursuit and use of power, and contemporary political issues. Satisfies the U.S. Constitution requirement.

103 PRINCIPLES OF AMERICAN CONSTITUTIONAL GOVERNMENT (3 + 0) 3 credits
Constitutions of the U.S. and Nevada with additional attention to various principles and current problems of government. Satisfies U.S. and Nevada Constitution requirements.

104 GREAT ISSUES OF POLITICS (3 + 0) 3 credits
Methods for systematic inquiry into selected issues in politics, such as liberty, authority and the role of elites.

210 AMERICAN PUBLIC POLICY (3 + 0) 3 credits
Analysis of the interplay of forces involved in policy-making at all levels of American government. The impact of policy on individuals and institutions.

211 COMPARATIVE GOVERNMENT AND POLITICS (3 + 0) 3 credits
Analysis of similarities and differences in the governing processes of different societies.

231 WORLD POLITICS (3 + 0) 3 credits
International relations stressing the principles of a systematic approach to world politics.

300 CONGRESSIONAL INTERNSHIP (6 + 0) 6 credits *S/U only*
Selected students serve in senator's or congressman's office in Washington. Prerequisite: 9 political science credits, including P SC 304 or examination.

301 LEGISLATIVE INTERNSHIP 3 or 6 credits *S/U only*
Selected students serve during regular session of Nevada Legislature. Prerequisite: 9 political science credits, including P SC 304 or examination.

304 THE LEGISLATIVE PROCESS (3 + 0) 3 credits
Analysis of legislative process in the political process—nation, state and community. Emphasis on legislative behavior and legislative decision-making.

305 THE AMERICAN PRESIDENCY (3 + 0) 3 credits
Constitutional position of the President and development of the presidential powers; recruitment and party leadership; functional requirements of executive leadership; presidential participation in legislation and adjudication.

308 AMERICAN STATE AND LOCAL GOVERNMENTS (3 + 0) 3 credits
Organization, working principles, and functional processes of state and local governments in the U.S. (Satisfies the legislative requirements for the Nevada Constitution.)

309 THE JUDICIAL PROCESS (3 + 0) 3 credits
Administration of justice in American courts, emphasizing the nature and function of law, court organization, participants in the system, trial processes, impact of court rulings.

323-324 HISTORY OF POLITICAL THOUGHT (3 + 0) 3 credits each
Analytical and critical survey of political theories from the Classical Period to the present.

336 MANAGING INTERNATIONAL INTERDEPENDENCE (3 + 0) 3 credits
Strategies and institutions for managing problems and opportunities of global and regional interdependency: United Nations system; international economic institutions; European community; North American integration. Prerequisite: P SC 231 or EC 458.

341 ELEMENTS OF PUBLIC ADMINISTRATION (3 + 0) 3 credits
Introduction to administrative theory, politics and responsibilities; bureaucracy; and public financial and personnel administration.

353 ETHNIC POLITICS IN THE UNITED STATES (3 + 0) 3 credits
Changing roles and special problems of ethnic groups in American politics and in comparative perspective with emphasis on the American Indian, Mexican-American and Black communities. Maximum of 6 credits.

354 POLITICS AND WOMEN (3 + 0) 3 credits
Women's political movements, differential political socialization processes and the economic and legal status of women.

400, 600 THE SUPREME COURT AND PUBLIC POLICY (3 + 0) 3 credits
Major decisions of recent terms of the Supreme Court; their impact upon federal-state relations, the executive and legislative branches and contemporary social issues. Prerequisite: American national government course. (Satisfies the legislative requirement for the U.S. Constitution.)

404, 604 JURISPRUDENCE (3 + 0) 3 credits
Problems of legal theory from the analytical, philosophical and sociological points of view. Particular attention to modern theories of law.

406, 606 URBAN POLITICS (3 + 0) 3 credits
Analysis of policy alternatives and governmental systems in urban areas. The role of officials, planners, interest groups and citizens in influencing the direction of policy.

407, 607 AMERICAN POLITICAL PARTIES AND ELECTORAL BEHAVIOR (3 + 0) 3 credits
Analysis of the nature, structure and functions of American political parties and electoral participation. Special emphasis on theories of elections, voting habits and patterns and campaigns in American politics.

409, 609 CONSTITUTIONAL LAW (3 + 0) 3 credits
Role of the Supreme Court in the political system, emphasizing constitutional development and judicial analysis of social and political issues; includes a study of administrative law. (Satisfies the legislative requirement for the U.S. Constitution.)

410, 610 POLITICAL TERRORISM AND VIOLENT POLITICAL MOVEMENTS (3 + 0) 3 credits
Groups and movements that use terrorism, guerrilla warfare and other violent techniques to challenge political regimes; causes and consequences of political violence within nations. Prerequisite: P SC 211 or 231.

411, 611 GOVERNMENT AND POLITICS IN WESTERN EUROPE (3 + 0) 3 credits
Political systems of the major Western European states and the social situations from which they have arisen.

414, 614 GOVERNMENT AND POLITICS IN EAST ASIA (3 + 0) 3 credits
Political evolution of Japan, Taiwan, South Korea; their histories, political cultures, institutions; democratization; the role of the state in economic development.

415, 615 GOVERNMENT AND POLITICS IN LATIN AMERICA (3 + 0) 3 credits
Comparison of the structure and dynamics of Latin American politics and government.

416, 616 GOVERNMENT AND POLITICS IN THE SOVIET UNION AND EASTERN EUROPE (3 + 0) 3 credits
States compared as to political culture, structures, forces, control and other problems.

417, 617 GOVERNMENT AND POLITICS IN CHINA (3 + 0) 3 credits
Contemporary China as a Communist nation; its ideology, history, politics, planned economy; causes, nature, evolution and reform of a Communist state.

418, 618 PROBLEMS IN DEVELOPED POLITICAL SYSTEMS (3 + 0) 3 credits
Aspects of political life common to such areas as Europe and North America. Maximum of 6 credits.

421, 621 POLITICAL ECONOMY (3 + 0) 3 credits
Examination of governmental policies as they are influenced by political theories and economic doctrines.

423, 623 CONTEMPORARY POLITICAL THEORY (3 + 0) 3 credits
Survey of theories linking political systems with socio-economic systems, e.g., politics in preindustrial and industrial societies, totalitarianism and democracy related to industrialization, postindustrialization theories.

426, 626 AMERICAN POLITICAL THOUGHT (3 + 0) 3 credits
American political thought from the colonial period to the present, including, among others, Puritanism, Republicanism, Jacksonian Democracy, Transcendentalism, Pragmatism and Social Darwinism.

430, 630 THE HOLOCAUST, GENOCIDE, AND HUMAN RIGHTS (3 + 0) 3 credits
Violation and protection of human rights in international law and practice; the Nazi extermination of European Jews and other instances of genocide. Prerequisite: P SC 231.

432, 632 AMERICAN FOREIGN POLICY (3 + 0) 3 credits
Environmental influences on U.S. policy; post-World War II problems; interests, principles, objectives, policies and commitments of current policy. Prerequisite: P SC 231.

433, 633 CONDUCT OF AMERICAN FOREIGN AFFAIRS (3 + 0) 3 credits
Organization and administrative machinery involved in the conduct of American foreign affairs. Prerequisite: P SC 231.

434, 634 SOVIET FOREIGN POLICY (3 + 0) 3 credits
International role of the Soviet Union in comparative perspective, emphasizing defense policies; links with other Communist parties and states; decision-making in crises. Prerequisite: P SC 231.

435, 635 INTERNATIONAL POLITICAL ECONOMY: NORTH-SOUTH RELATIONS (3 + 0) 3 credits
Theories of Third World development emphasizing the role of the state; selected political-economic issues of concern for the Third World. Prerequisite: P SC 231 or 336.

437, 637 INTERNATIONAL CONFLICT (3 + 0) 3 credits
Classical and contemporary literature on the causes of war among nations and the conditions of international peace. Prerequisite: P SC 231.

438, 638 THE MIDDLE EAST IN WORLD AFFAIRS (3 + 0) 3 credits
Political life in the Middle East with particular emphasis on the Arab-Israeli conflict, the politics of oil and problems of development and instability. Prerequisite: P SC 211 or 231.

439, 639 PROBLEMS OF WORLD POLITICS (3 + 0) 3 credits
Analysis of selected contemporary problems of world politics. Prerequisite: P SC 231. Maximum of 6 credits.

441, 641 PUBLIC FINANCIAL ADMINISTRATION (3 + 0) 3 credits
Analysis of fiscal agencies in federal, state and local governments and discussion of the problems and processes of governmental budgeting, accounting, auditing, purchasing, tax administration and treasury management.

442, 642 PUBLIC PERSONNEL ADMINISTRATION (3 + 0) 3 credits
Methods of recruiting, examining, training and other techniques utilized in the management of employees in government service.

443, 643 THE POLITICS OF ADMINISTRATION (3 + 0) 3 credits
Process of translating legislative and executive decision into administrative action; effect of structure upon policy; manipulating and following public opinion; formal and informal decision-making.

444, 644 COMPARATIVE PUBLIC ADMINISTRATION (3 + 0) 3 credits
Ecology of public administration. Examination of basic administrative concepts in different cultural settings, in both technologically advanced countries and the developing nations.

445, 645 THEORIES OF PUBLIC ADMINISTRATION (3 + 0) 3 credits
Development and application of theories of public administration, especially their relevance to complex organizations, decision-making, group behavior and politics.

446, 646 ADMINISTRATIVE LAW (3 + 0) 3 credits
Legal setting of public administrative, adjudicative and rule-making authority. Remedies for abuse of administrative authority. Prerequisite: P SC 341.

447, 647 INTERGOVERNMENTAL RELATIONS (3 + 0) 3 credits
Analysis of the interactions between federal, state and local governments. Theoretical foundations of federalism, issues of public policy and administration.

450, 650 PUBLIC SERVICE INTERNSHIP 1 to 6 credits
Students serve in federal, state or local government offices or in nongovernmental public service organizations. Prerequisite: P SC 341 recommended. *S/U only for 450; regular grading for 650.*

451, 651 PUBLIC OPINION AND POLITICAL PSYCHOLOGY (3 + 0) 3 credits
Analysis of the psychological aspects of politics in relation to public opinion, propaganda, personality and political socialization.

452, 652 CITIZEN PARTICIPATION, PRESSURE GROUPS AND POLITICAL MOVEMENTS (3 + 0) 3 credits
Examination of non-violent ways citizens directly and indirectly influence government beyond voting; interest group activity, protest behavior and direct involvement in government. Prerequisite: P SC 210.

455, 655 ENERGY AND RESOURCE POLICY (3 + 0) 3 credits
Politics shaping American energy and resource policies examined within international, federal and partisan contexts. Special attention given to Western regional and public lands controversies. Prerequisite: P SC 210.

456, 656 PROBLEMS IN AMERICAN PUBLIC POLICY (3 + 0) 3 credits
Analysis of selected contemporary problems in American public policy. Maximum of 6 credits.

457, 657 ENVIRONMENTAL POLICY (3 + 0) 3 credits
Evaluation of policies in environmental areas. (Same as ENV 457.)

497, 697 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

701 SEMINAR IN AMERICAN POLITICS (3 + 0) 3 credits
Exploration of selected approaches to American politics. Emphasis on analysis of problems. Maximum of 9 credits.

711 SEMINAR IN COMPARATIVE POLITICS (3 + 0) 3 credits
Maximum of 9 credits.

723 SEMINAR IN POLITICAL THEORY (3 + 0) 3 credits
Maximum of 9 credits.

731 SEMINAR IN INTERNATIONAL RELATIONS (3 + 0) 3 credits
Maximum of 9 credits.

741 SEMINAR IN PUBLIC ADMINISTRATION (3 + 0) 3 credits
Maximum of 9 credits.

750 SEMINAR IN PUBLIC POLICY (3 + 0) 3 credits
Aspects of policy formulation, content, implementation and evaluation at the local, state or national level. Maximum of 9 credits.

755 PROGRAM DESIGN AND EVALUATION (3 + 0) 3 credits
Concepts, problems, issues and techniques involved with formulating and assessing governmental programs. Prerequisite: P SC 782.

780 RESEARCH IN POLITICAL SCIENCE (2 + 2) 3 credits
Concepts and methods of political science research: includes legal research, information retrieval, interviews and surveys and development of quantitative data. Prerequisite: PSY 210 or SOC 210 or equivalent.

781 POLITICAL SCIENCE AS A DISCIPLINE (3 + 0) 3 credits
Examination of conceptual foundations of political science.

782 ADVANCED RESEARCH METHODS IN POLITICAL SCIENCE (2 + 2) 3 credits
Techniques and methodologies currently employed in political science, including statistical measures, survey research and the relating of research to theory. Prerequisite: PSY 210 or SOC 210 or equivalent.

791 SPECIAL TOPICS 1 to 3 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

401-402 POLITICAL SCIENCE SYMPOSIUM (3 + 0) 3 credits each
412, 612 GOVERNMENT AND POLITICS IN AFRICA (3 + 0) 3 credits
419, 619 PROBLEMS OF DEVELOPING POLITICAL SYSTEMS (3 + 0) 3 credits

PSYCHIATRY AND BEHAVIORAL SCIENCES (PCHY)

402, 602 HUMAN BEHAVIOR II (4 + 0) 4 credits
Substance abuse, human sexuality, and basic principles of psychopathology and psychotherapy as applied to behavioral problems in medicine.

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing psychiatry.

461, 661 ELECTIVES 2 to 8 credits each
Elective experiences in the major subspeciality areas of psychiatry and behavioral sciences including: (a) addictive disorders, (b) drug and alcohol abuse, (c) medical hypnosis, (d) outpatient psychiatric assessment, (f) sports medicine, (g) marital therapy, (h) clinical research in psychiatry and medicine. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

468, 668 INDIVIDUAL STUDY IN BEHAVIORAL SCIENCE 1 to 3 credits
Library research in selected topics in behavioral science and discussions with faculty. Maximum of 6 credits.

469, 669 DIRECTED RESEARCH IN BEHAVIORAL SCIENCE 1 to 3 credits
Guided research in any area of mutual interest to the student and faculty. Maximum of 6 credits.

490, 690 INDEPENDENT STUDY 1 to 4 credits

601 HUMAN BEHAVIOR I (3 + 0) 3 credits
Human development, stress, communication and interpersonal and family dynamics as applied to behavioral problems in medicine.

660 INTRODUCTION TO CLINICAL MEDICINE (2 + 3) 3 credits
Interpersonal skills necessary to establish and maintain constructive student-physician-patient relationships, principles and skills of medical interviewing and history taking, personal responsibility toward the patient and their family, professional treatment of patient information.

PSYCHOLOGY (PSY)

101 INTRODUCTORY PSYCHOLOGY (3 + 0) 3 credits
Survey of the discipline of psychology, introducing psychological theories, research methods and principles of behavior.

102 PSYCHOLOGY OF PERSONAL AND SOCIAL ADJUSTMENT (2 + 0) 2 credits
Deals with personality adjustment in normal persons. Adjustment techniques and reactions to frustration and conflict in the context of various social groups are considered. Prerequisite: PSY 101.

103 PSYCHOLOGY AS A NATURAL SCIENCE (2 + 2) 3 credits
Measurement of actions of individual biological organisms acting in and upon an environment.

205 ELEMENTARY ANALYSIS OF BEHAVIOR (2 + 2) 3 credits
Survey of principles of reinforcement theory in the analysis of behavior. Principles of learning demonstrated in the laboratory. Prerequisite: PSY 101.

210 STATISTICAL METHODS (3 + 2) 4 credits
Practice with statistical methods especially useful in the presentation and interpretation of psychological, sociological and educational data, including elementary computer programming. Prerequisite: PSY 101 or SOC 101; a standard score of 18 or better in the mathematics portion of the ACT or a grade of C or better in MATH 101. (Same as SOC 210.)

233 CHILD PSYCHOLOGY (3 + 0) 3 credits
Psychological aspects in the development of children through preadolescence. Examination of behavioral, social, cognitive, affective and cultural factors. Theory and research on developmental stages. Prerequisite: PSY 101.

234 PSYCHOLOGY OF ADOLESCENCE (3 + 0) 3 credits
Psychological and social psychological growth and development during adolescence in contemporary Western society. Covers puberty to early adulthood. Prerequisite: PSY 101.

261 SOCIAL PSYCHOLOGY I: THE PERSON AND SOCIAL INFLUENCE (3 + 0) 3 credits
Nature of the person and of interpersonal relationships, their formation and maintenance and their institutional, ideological and societal contexts; empirical examination of beliefs, attitudes, influence. Prerequisite: PSY 101 or SOC 101. (Same as SOC 261.)

275 UNDERGRADUATE RESEARCH (1 to 3 + 0) 3 credits
Independent or collaborative empirical research. Maximum of 6 credits. Prerequisite: PSY 101.

299 SPECIAL TOPICS (1 to 5 + 0) 1 to 5 credits
Suitable topic under the supervision of a staff member. Maximum of 5 credits. Prerequisite: PSY 101.

301 EXPERIMENTAL PSYCHOLOGY (2 + 4) 4 credits
Lecture and laboratory course in the application of scientific methods to the study of behavior and mental processes. Prerequisite: PSY 101 and 210.

321 EDUCATIONAL PSYCHOLOGY (3 + 0) 3 credits
Educational applications of psychology to learning, discipline, and social, emotional and intellectual behavior. Educational and psychological tests and measurements. Prerequisite: PSY 101.

333 ENVIRONMENTAL PSYCHOLOGY (3 + 0) 3 credits
Investigation of human environment interactions: perception of and behavior in environment, both natural and built and including the city as a special habitat. Prerequisite: PSY 101.

362 SOCIAL PSYCHOLOGY II: GROUP STRUCTURE AND PROCESS (3 + 0) 3 credits
(See SOC 362 for description.)

375 UNDERGRADUATE RESEARCH (1 to 3 + 0) 1 to 3 credits
Independent or collaborative empirical research. Maximum of 6 credits. Prerequisite: PSY 101.

391 INDUSTRIAL AND PERSONNEL PSYCHOLOGY (3 + 0) 3 credits
Application of psychological principles to personnel problems of government, business and industry. Topics include selection, management and supervision, morale and productivity. Prerequisite: PSY 101.

392 RESEARCH METHODS (3 + 0) 3 credits
(See SOC 392 for description.)

403, 603 PHYSIOLOGICAL PSYCHOLOGY (2 + 2) 3 credits
Physiological mechanisms associated with reflex action, emotions, motor skills, thinking and language. Effects of drugs, internal secretions and neural lesions on behavior. Prerequisite: PSY 101.

405, 605 PERCEPTION (3 + 0) 3 credits
Basic principles by which man perceives his environment. Topics can include the perception of form, color, space and depth. Prerequisite: PSY 101.

406, 606 APPLIED BEHAVIOR ANALYSIS (3 + 0) 3 credits
Application of behavioral principles and techniques in the home, school, hospital and institution. Emphasis on motivational and learning procedures for use with problem behaviors in children and adults. Prerequisite: PSY 101 or 203-204.

408, 608 HISTORY OF PSYCHOLOGY (3 + 0) 3 credits
Historical background of psychology from the Greek period to the present.

Development of psychology as a science and advances during this century. Prerequisite: PSY 101.

410, 610 PHILOSOPHICAL CRITICISMS OF PSYCHOLOGICAL RESEARCH (3 + 0) 3 credits
Review of criticisms of psychological research by philosophers in the tradition of ordinary language analysis. Prerequisite: PSY 101.

411, 611 THINKING AND PROBLEM SOLVING (3 + 0) 3 credits
Experimental and applied concepts. Thinking and hypothesis testing, schema, and information processing. Examples from both traditional areas of experimental psychology and related areas in cognitive psychology.

412, 612 INTRODUCTION TO PSYCHOLOGICAL ASSESSMENT (3 + 0) 3 credits
Theoretical and psychometric bases of psychological assessment. Survey of standard test, interview and observational techniques for evaluating behavioral, cognitive and personaility characteristics of individuals. Prerequisite: PSY 101.

421, 621 CONDITIONING AND LEARNING (3 + 0) 3 credits
Factors and conditions which enhance or retard learning. Survey of learning theories and basic principles of classical conditioning, instrumental conditioning and discrimination learning. Prerequisite: PSY 101.

422, 622 SOCIAL PSYCHOLOGICAL THEORIES (3 + 0) 3 credits
(See SOC 422 for description.)

427, 627 COMPUTER APPLICATIONS IN SOCIAL AND BEHAVIORAL SCIENCES (3 + 0) 3 credits
(See SOC 427, 627 for description.)

431, 631 COGNITIVE PSYCHOLOGY (3 + 0) 3 credits
Current developments in cognitive psychology with major emphasis on research in human learning, memory, information processing, problem-solving, concept formation and thinking. Prerequisite: PSY 101.

433, 633 PSYCHOLOGICAL ASPECTS OF RACIAL DIFFERENCES (3 + 0) 3 credits
Multicultural view of existence in the U.S. from the perspective of ethnic minorities. Psychological implications and consequences of racial identity, socio-cultural factors and racism. Prerequisite: PSY 101.

35, 635 PERSONALITY (3 + 0) 3 credits
urvey of major theories of personality. Personality development, structure and ynamics. Examination of major areas of research on personality. Prerequisite: SY 101.

41, 641 ABNORMAL PSYCHOLOGY (3 + 0) 3 credits
sychology of abnormal behavior—primarily neuroses and psychoses—ressing symptomatology, etiology, dynamics and problems in diagnosis. Pre-:quisite: PSY 101. PSY 641 not open to psychology majors.

44, 644 PSYCHOLOGY OF EXCEPTIONAL CHILDREN (3 + 0) 3 credits
evoted to the study of children who are mentally deficient or mentally perior and children with sensory deficiencies or orthopedic handicaps. Pre-quisite: PSY 101.

46, 646 PSYCHOLOGICAL ASPECTS OF AGING (3 + 0) 3 credits
troduction to theories and research on the aging process. Practical applica-ons.

47, 647 GEROPSYCHOLOGY FIELD EXPERIENCE (0 + 9) 3 credits
upervised experience in community agencies with a focus on psychological ap-roaches to working with older people. Prerequisite: PSY 446, 646. Maximum f 6 credits.

48, 648 GEROPSYCHOLOGY: INDEPENDENT STUDY 1 to 3 credits
Directed research projects. Maximum of 6 credits. Prerequisite: PSY 446, 646.

451, 651 BASIC PRINCIPLES OF PSYCHOTHERAPY (3 + 0) 3 credits
Basic psychological principles and theoretical approaches of individual psychotherapy. Prerequisite: PSY 101.

463, 663 SOCIAL PSYCHOLOGY III: SOCIAL PSYCHOLOGY OF EDUCATION (3 + 0) 3 credits
Effects on learning of such social psychological factors as family, social class, school social structure, classroom structure and allocation of the teacher role are considered. Prerequisite: PSY 101 or SOC 101, PSY 261 or SOC 261 or PSY 362 or SOC 362. PSY 663 not open to psychology majors. (Same as SOC 463.)

472, 672 EXPERIMENTAL ANALYSIS OF BEHAVIOR (3 + 0) 3 credits
Review of current research in the experimental analysis of behavior. Prerequisite: PSY 101.

473, 673 RADICAL BEHAVIORISM (3 + 0) 3 credits
Survey of Skinner's work. Emphasis on the role of private events in a natural science, the analysis of verbal behavior and the conduct of psychological research. Prerequisite: PSY 101.

475 HONORS THESIS (3 + 0) 3 credits
Research investigation conducted and written in thesis form. Prerequisite: admission to departmental honors program in psychology.

480, 680 MOTIVATION (3 + 0) 3 credits
Basic principles of motivation. Examination of major themes and contemporary research in the field. Application of motivational psychology to special areas, including educational and business. Prerequisite: PSY 101.

481, 681 PRINCIPLES OF ANIMAL BEHAVIOR (3 + 0) 3 credits
Review of field and laboratory studies on the determinants and mechanisms of animal behavior to establish relations between behavior of similar and different species. Prerequisite: PSY 101, BIOL 101. (Same as BIOL 481, 681.)

482, 682 ANIMAL BEHAVIOR LABORATORY (0 + 3) 1 credit
Observational study of behavior, in both laboratory and field, of various animal species. Emphasis on elements of ethogram preparation and between-species comparisons. Prerequisite: previous or concurrent registration in PSY 481 or 681 or BIOL 481 or 681. (Same as BIOL 482.)

483, 683 ANIMAL COMMUNICATION (3 + 0) 3 credits
Review of field and laboratory studies on animal communication and human nonverbal communication. Prerequisite: PSY 101, BIOL 101.

499, 699 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Study in a suitable topic under supervision of a faculty member. Maximum of 9 credits. Prerequisite: PSY 101.

Prerequisite for following 700-level courses: admission to graduate standing in the Department of Psychology.

704 PSYCHOLOGICAL INTERVENTION I (3 + 0) 3 credits
Principles and methods of psychological intervention with children. Theoretical rationale, symptoms, causes and target behaviors. Special techniques, including operant procedures and other psychotherapeutic methods. Prerequisite: enrollment in clinical psychology program.

705 PSYCHOLOGICAL INTERVENTION II (3 + 0) 3 credits
Principles and methods of psychological intervention with adults. Special techniques, including individual and group psychotherapy, desensitization, psychodrama, hypnotherapy and encounter groups. Prerequisite: enrollment in clinical psychology program.

706 INTERMEDIATE STATISTICS I (3 + 0) 3 credits
Theory and application of statistical inference with special emphasis on probability, parametric and nonparametric techniques including simple and complex analysis of variance, multiple comparison techniques and trend analysis. Prerequisite: PSY 210 or equivalent. (Same as SOC 706.)

707 INTERMEDIATE STATISTICS II (3 + 0) 3 credits
Theory and application of statistical inference with special emphasis on multivariate models, including multiple and partial regression, factor analysis, path analysis and discriminant function analysis. Prerequisite: PSY 706. (Same as SOC 707.)

708 SEMINAR IN PHILOSOPHICAL PSYCHOLOGY (3 + 0) 3 credits
Selected topics in recent philosophical psychology. Prerequisite: PSY 408. (Same as PHIL 708.)

710 EXPERIMENTAL DESIGN (3 + 0) 3 credits
Theory and application of principles used in the construction of experimental designs primarily as derived from the analysis of variance. Prerequisite: PSY 706, 707.

711 PSYCHOLOGICAL ASSESSMENT I (3 + 0) 3 credits
Theory and practice of psychological assessment of children. Interview, test, and observational techniques for evaluating behavioral, developmental, cognitive, perceptual-motor and personality factors.

712 PSYCHOLOGICAL ASSESSMENT II (3 + 0) 3 credits
Theory and practice of psychological assessment of adults. Special techniques including interview, systematic observation, intelligence and personality tests, and functional behavioral analysis.

714 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: ADULT I (3 + 0) 3 credits
Supervised theoretical and experiential application of adult psychotherapy and assessment approaches in clincial psychology. Prerequisite: admitted to clinical psychology program.

715 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: ADULT II (3 + 0) 3 credits
Supervised theoretical and experiential application of advanced adult and couple approaches in psychotherapy and assessment. Prerequisite: admitted to the clinical psychology program

716 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: CHILD I (3 + 0) 3 credits
Supervised theoretical and experiential application of child-family approaches in psychotherapy, assessment and community psychology. Prerequisite: admitted to the clinical psychology program.

717 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: CHILD II (3 + 0) 3 credits
Supervised theoretical and experiential application of advanced child-family approaches in psychotherapy, assessment and community psychology. Prerequisite: admitted to the clinical psychology program.

718 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
Theory construction and the application of research methods in social psychology. (Same as SOC 718.)

720 SEMINAR IN SENSATION AND PERCEPTION (3 + 0) 3 credits
Experiments and problems in sensation and perception. Prerequisite: PSY 405 or equivalent.

721 ADVANCED PSYCHOPHYSIOLOGY (3 + 0) 3 credits
Current developments and animal physiological research relating to general principles of sensation, perception and behavior. Prerequisite: PSY 403 or equivalent.

725 SOCIALIZATION (3 + 0) 3 credits
(See SOC 725 for description.)

726 INTERPERSONAL TRANSACTIONS (3 + 0) 3 credits
(See SOC 726 for description.)

727 GROUP BEHAVIOR (3 + 0) 3 credits
(See SOC 727 for description.)

728 COLLECTIVE BEHAVIOR AND MASS SOCIETY (3 + 0) 3 credits
(See SOC 728 for description.)

730 SEMINAR IN MOTIVATION AND LEARNING (3 + 0) 3 credits
Contemporary theory and research in the areas of motivation, emotion, and learning. Prerequisite: PSY 421 or 480 or equivalent.

731-732 THEORIES OF LEARNING (3 + 0) 3 credits each
Examination of research on learning and theories which attempt to explain the processes of learning. Prerequisite: PSY 421 or equivalent.

733 PSYCHOBIOLOGY OF LANGUAGE (3 + 0) 3 credits
Critical review and discussion of the literature concerning the relationship of cognitive and communicative behavior to linguistic behavior with particular emphasis on research with animals.

736 ADVANCED STUDIES IN DEVELOPMENTAL PSYCHOLOGY (3 + 0) 3 credits
Principles, theories, and research in human development with emphasis on the normal individual. Includes supervised research in special problems. Prerequisite: PSY 233 or 234 or 444 or equivalent.

737 SURVEY RESEARCH METHODS (3 + 0) 3 credits
(See SOC 737 for description.)

738 METHODS AND INNOVATIONS IN ASSESSMENT (3 + 0) 3 credits
Theory of assessment of persons and situation. Survey of newer assessment techniques and instruments. Methods of constructing tests and other assessment devices. Prerequisite: graduate standing in behavioral sciences. (Same as SOC 738.)

739 RESEARCH METHODS IN CLINICAL AND PERSONALITY PSYCHOLOGY (3 + 0) 3 credits
Historical and philosophical background of psychological research. Theory construction, experimental design and scientific writing. Current trends in clinical and personality research methodology.

740 BEHAVIOR PROBLEMS (3 + 0) 3 credits
Behavioral problems encountered in clinical practice. Developmental, emotional and organic disturbances; alcoholism, marital discord, drug abuse and other psychological problems of contemporary living. Prerequisite: PSY 441 or equivalent.

741 NONPATHOLOGICAL PROBLEMS OF BEHAVIOR AND PERSONALITY (3 + 0) 3 credits
Emphasis on the concerns of normal individuals such as competence, aggression, achievement and anxiety; recent trends in research and contributions of major and micropersonality theorists.

742 AGING AND MENTAL HEALTH (3 + 0) 3 credits
Research, assessment, and treatment. Includes depression, dementias, grief, wellness, creativity, and wisdom. Prerequisite: graduate standing in behavioral or health sciences.

744-745 SEMINAR IN PERSONALITY (3 + 0) 3 credits each
Contemporary theory and research on personality. Recent trends and issues.

748 COMMUNITY PSYCHOLOGY (3 + 0) 3 credits
Mental health problems of population, including psychological epidemiology and mental health needs of communities. Mental health consultation and education. Crisis intervention. Prerequisite: graduate standing in behavioral or health sciences.

749 SEMINAR IN COMMUNITY PSYCHOLOGY (3 + 0) 3 credits
Advanced study of community psychology. Emphasis on community intervention approaches, systems analysis and community change. Prerequisite: graduate standing in behavioral or health sciences.

750-751 SEMINAR IN CLINICAL PSYCHOLOGY (3 + 0) 3 credits each
Consideration of contemporary theory, research and practices in the field of clinical psychology.

752 GRADUATE RESEARCH 1 to 5 credits
Research projects in psychology carried out under supervision. Maximum of 6 credits.

753 RESEARCH PRACTICUM (1 to 3 + 0) 1 to 3 credits
Research apprenticeship in ongoing research projects. Familiarization with aims and methods of psychological research.

755 INDIVIDUAL READING 1 to 5 credits
Supervised reading with regular conferences between student and instructor. Maximum of 9 credits.

761-762 CONTEMPORARY ISSUES IN PSYCHOLOGY (3 + 0) 3 credits each
Consideration in depth of selected topics of contemporary interest. Maximum of 6 credits each.

763 SPECIAL TOPICS IN EXPERIMENTAL PSYCHOLOGY (3 + 0) 3 credits
Consideration of selected current research problems and conceptual issues in experimental psychology.

764 SPECIAL TOPICS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
Consideration of selected current research problems and conceptual issues in social psychology. Maximum of 9 credits. (Same as SOC 764.)

771 INTRODUCTION TO CLINICAL PSYCHOLOGY (3 + 0) 3 credits
Nature and history of clinical psychology, models of psychological intervention, diagnostic issues, evaluation of psychotherapy, ethical and professional standards, current professional issues. Prerequisite: admitted to the clinical psychology program.

772 RURAL MENTAL HEALTH (3 + 0) 3 credits
Special characteristics of rural mental health and the clinical psychologist's function as consultant in rural communities.

773 CLINICAL PSYCHOLOGY HALF-TIME EXTERNSHIP 1 to 5 credits *S/U only*
Includes half-time third-year externship as required by the clinical psychology program. Prerequisite: clinical psychology major.

774 CLINICAL PSYCHOLOGY FULL-TIME INTERNSHIP 1 to 5 credits *S/U only*
Includes full-time internship as required by the clinical psychology program. Prerequisite: clinical psychology major.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

203-204 ADVANCED GENERAL PSYCHOLOGY (3 + 0) 3 credits each
325 PARAPSYCHOLOGY (3 + 0) 3 credits

RANGE, WILDLIFE AND FORESTRY (RWF)

A number of courses require field trips and laboratory exercises that involve additional student expenses. Many courses are offered on an alternate year basis. Consult with the department prior to registration.

100 PRINCIPLES OF RESOURCE MANAGEMENT (3 + 0) 3 credits
Scientific and managerial principles applied to forest, range, wildlife, hydrology and soil resources. One or two field trips.

271 WILDERNESS SURVIVAL (3 + 0) 3 credits
Skills and concepts to survive under wilderness conditions, including attitude, fire building, shelters, terrain hazards, location and preparation of edible plants and animals, clothing and equipment. Training and preparation necessary to make mountain and desert wildlands an enjoyable recreation resource.

304 HYDROLOGY FOR NATURAL RESOURCE MANAGEMENT (3 + 0) 3 credits
Principles and methods of managing range and forest land in terms of water quantity, quality and timing. One or two field trips required. Prerequisite: MATH 115 or equivalent.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

341 PRINCIPLES OF RANGE MANAGEMENT (2 + 3) 3 credits
Conservation, management and multiple use of range resources. Prerequisite: BIOL 201 or 202 or equivalent. Field trips required.

345 RANGE AND FOREST PLANTS (3 + 6) 5 credits
Identification, distribution, and management of the major range plants and forest trees occurring in the western U.S.

347 PLANT ECOLOGY (3 + 3) 4 credits
(See BIOL 347 for description.)

351 REMOTE SENSING OF NATURAL RESOURCES (2 + 3) 3 credits
Measurements and interpretation of aerial photography and other remotely sensed data. Conventional and digital mapping techniques for land measurements. Prerequisite: RWF 100, MATH 115.

401, 601 LOGGING SYSTEMS (2 + 3) 3 credits
Analysis and development of timber harvest plans for different forest types and silvicultural treatments with consideration of the transportation system, logging methods and costs, silvicultural and watershed protection principles, and taxation and legal requirements. Mandatory field trip. Prerequisite: RWF 100.

402, 602 FOREST MANAGEMENT (3 + 0) 3 credits
Organization of forest properties for sustained production of wood products; determination of rotation, regulation of cut and growing stock, management plans and forest valuation. Prerequisite: MATH 115; RWF 100.

.04, 604 INTRODUCTION TO AEROSPACE REMOTE SENSING (3 + 2) 3 credits
(See GEOL 404 for description.)

05, 605 SILVICULTURE AND REGIONAL SILVICULTURE (4 + 3) 5 credits
Theory and methods of controlling establishment, composition, growth and uality of forest stands. Application of silvicultural practices to important ecies and forest types of the U.S. Mandatory field trips. Prerequisite: RWF 0, 345.

'5, 606 FOREST TREE PHYSIOLOGY AND GENETICS (4 + 0) 4 credits
otosynthesis, respiration, water relations, nutrition, shoot and root develop- nt, reproduction and genetics of forest trees. Application of physiological d genetic principles in predicting effects of silvicultural practices on tree owth and in tree improvement. Prerequisite: BIOL 202.

)7, 607 QUANTITATIVE RANGE AND FOREST TECHNIQUES (4 + 3) 5 credits
Range methods and forest mensuration techniques commonly used in quantifying natural resources. Statistical analyses and interpretation are stressed. Prerequisite: AGEC 270, MATH 115, RWF 345.

411, 611 ENVIRONMENTAL LAW (3 + 0) 3 credits
(See C E 411, 611 for description.)

414, 614 HYDROLOGIC FLUID DYNAMICS (3 + 0) 3 credits
(See GEOL 414, 614 for description.)

422, 622 SOIL PHYSICS (2 + 3) 3 credits
Physical properties of soil components; soil structure,, temperature, aeration, soil-water interactions; methods of measurements; application to tillage and soil management. Prerequisite: MATH 115, AGRO 222. (Same as AGRO 422, 622.)

425, 625 CONSERVATION OF LARGE MAMMALS AND THEIR ECOSYSTEMS (3 + 0) 3 credits
Presentation of key scientific concepts and examination of factors required for conservation of marine and terrestrial mammals including primates, ungulates, carnivores, and cetaceans. Prerequisite: BIOL 212, 378.

427, 627 WILDLIFE HABITAT MANAGEMENT (2 + 3) 3 credits
Cultural practices, including mechanical, chemical and biological techniques to manipulate terrestrial environments, meering specific habitat objectives. Field trips required. Prerequisite: BIOL 212, RWF 302.

435, 635 CONSERVATION OF NATURAL RESOURCES (3 + 0) 3 credits
(See GEOG 435 for description.)

444, 644 SOIL MORPHOLOGY AND CLASSIFICATION (2 + 3) 3 credits
Morphological description and identification of soils; kinds of soils; principles of soil mapping; use of soil maps, soil genesis; predicting behavior from morphology and taxonomic identity; some field classes. Prerequisite: AGRO 222; GEOL 101 recommended.

460,660 RANGELAND RESOURCE MANAGEMENT 3 credits
Capstone field course involving evaluation of actual rangeland management case studies. Prerequisite: BIOL 212, RWF 341; 345.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range management, (d) outdoor recreation, (e) hydrology/hydrogeology, (f) soils. Maximum of 6 credits.

482, 682 SMALL WATERSHED HYDROLOGY (4 + 3) 5 credits
The role of land conditions in dealing with problems of applied hydrology with emphasis on the small watershed, limited data and land management situations. Prerequisite: AGRO 222, GEOL 101, MATH 115.

483, 683 HYDROLOGY OF IRRIGATED AGRICULTURE (3 + 0) 3 credits
Water supply and diversion for irrigation. Production functions and evapotranspiration modeling. Shallow groundwater management and safe disposal of drainage effluent. Prerequisite: MATH 115, AGRO 222.

484, 684 WATERSHED ANALYSIS AND PLANNING (0 + 6) 2 credits
Field study for students interested in hydrology/hydrogeology and advanced study of principles, technical problems and procedures encountered in managing watersheds. Alternate years. Prerequisite: RWF 304 or 482 or 483 or equivalent.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations and developments. These may include such areas as multiple resource management, photogrammetric interpretation, water quality and game preserve management. Maximum of 6 credits.

490, 690 ENVIRONMENTAL ISSUES IN PUBLIC LAND MANAGEMENT (3 + 0) 3 credits
Critical presentations and discussions of selected topics.

493, 693 RANGE AND FOREST ECOLOGY (2 + 3) 3 credits
Ecologic and economic interpretations of major range and forest communities. The application of autecological synecological principles to range and forest ecosystems. Ecosystem influences and modeling. Field trips required. Prerequisite: BIOL 212 or equivalent.

494, 694 RANGE AND FOREST ADMINISTRATION AND POLICY (3 + 0) 3 credits
Public administration applied to forest and rangeland resource management. Development history of resource agencies and policies. Administrative procedures, policy formation, decision-making, and public participation principles as related to the present and future political environment of natural resource protection, development and management.

497, 697 FOREST AND RANGE SOILS (3 + 0) 3 credits
Soil types associated with forests and range. Biological, physical and chemical soil properties, productivity relations and management implications. Field trips required. Prerequisite: AGRO 222.

701 ADVANCED RESOURCE MANAGEMENT 1 to 3 credits
Special advanced course work in (a) forestry, (b) wildlife, (c) range management, (d) outdoor recreation, (e) hydrology/hydrogeology, (f) soils. Maximum of 6 credits.

702 SOIL CHEMISTRY (2 + 3) 3 credits
Concepts of soil chemistry. Considers the physical and chemical properties of soils: mineralogical and chemical composition, ion exchange phenomena, chemistry of salt-affected and acid soils, trace element chemistry. Methods of analysis and interpretation. Prerequisite: AGRO 327, CHEM 330. (Same as AGRO 702.)

711 RESEARCH METHODS (3 + 0) 3 credits
Research principles applied to natural resource problems. Experimental design, field data collection, statistical analysis, interpretation, presentation of results and preparation of publications. Prerequisite: AGEC 270, MATH 115.

714 WILDLIFE ECOLOGY AND BEHAVIOR (3 + 0) 3 credits
Seminar or lectures on topics and problems in current literature dealing with predators and herbivores, group living, mating systems and distributional patterns. Prerequisite: BIOL 378, 381.

715 PRESENTATION OF SCIENTIFIC INFORMATION (2 + 0) 2 credits
Development of skills to improve visual and verbal presentation of research results to lay and scientific audiences.

725 PLANT PHYSIOLOGICAL ECOLOGY (3 + 0) 3 credits
Microenvironment and energy balance of plants. Acquisition of water, carbon and nutrients. Application of mechanistic, physiological processes to ecological relationships between plants and their environment. Prerequisite: BIOL 320 or 486, BIOL 347 or RWF 493, B CH 412 or BIOL 355.

741 IRRIGATION WATER MANAGEMENT (3 + 0) 3 credits
Evapotranspiration modeling and irrigation scheduling for optimal crop yield and water conservation. Effect of irrigation management on drainage quantity and quality. Drainage water disposal. Prerequisite: RWF 483, 683 or equivalent.

742 SHALLOW GROUND WATER MANAGEMENT (3 + 0) 3 credits
Recharge and quality of shallow aquifers. Pollution of surface waters and deep ground water. Potential, beneficial uses. Disposal methods of shallow ground water of unacceptable quality. Prerequisite: RWF 304, G E 684.

745 RANGELAND GRAZING (3 + 0) 3 credits
Co-evolutionary development of plant communities and native ungulate grazing. Development of modern livestock grazing strategies. Prerequisite: RWF 341.

746 ADVANCED ANALYSIS METHODS IN NATURAL RESOURCES (2 + 3) 3 credits
Applied use and interpretation of multivariate and modeling techniques for natural resources and biological studies. Prerequisite: MATH 213, 183 or E E 131, AGEC 270 or MATH 251, 313, 320, 330 recommended.

760 RANGE ECOSYSTEM ANALYSIS (1 + 3) 2 credits
Procedure for the investigation of range ecosystems, plant biomass, animal biomass, nutrition, vegetarion-soil relationships, stratification, and vegetation sampling, mineral cycling, processes, systems and modeling. Prerequisite: course in statistics.

782 HYDROLOGY/HYDROGEOLOGY SEMINAR (0 + 3) 1 credit
Preparation of written reports and/or oral presentations. Guest lecturers. Maximum of 3 credits. (Same as GEOL 782.)

790 SEMINAR (1 + 0) 1 credit
Presentations of potential research projects and research results by graduate students and faculty. Maximum of 2 credits.

793 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range management, (d) outdoor recreation, (e) hydrology/hydrogeology, (f) wildland conservation. Maximum of 6 credits in each topic.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 2 credits *S/U only*
Required of all graduate students who wish to complete the master of science degree under Plan B.

797 THESIS 1 to 6 credits
Thesis may be written in area of (a) forestry, (b) wildlife management, (c) range management, (d) hydrology/hydrogeology, (e) outdoor recreation.

799 DISSERTATION 1 to 24 credits

Inactive Courses

200 PRINCIPLES OF FOREST MANAGEMENT (2 + 0) 2 credits
291 RANGE AND FOREST FIRE SCIENCE (1 + 3) 2 credits
323 FISHERY MANAGEMENT (2 + 3) 3 credits
348 RANGE IMPROVEMENT (2 + 3) 3 credits
361 RECREATION RESOURCE MANAGEMENT (3 + 0) 3 credits
403, 603 ADVANCED FOREST MENSURATION (2 + 3) 3 credits
420, 620 INTEGRATED NATURAL RESOURCE MANAGEMENT (2 + 3) 3 credits
421, 621 UPLAND GAME AND WATERFOWL MANAGEMENT (3 + 3) 4 credits
450, 650 RANGE RESOURCE PLANNING (2 + 3) 3 credits
716 ADVANCED WILDLIFE MANAGEMENT (3 + 0) 3 credits
786 SNOW HYDROLOGY (1 + 6) 3 credits

RECREATION, PHYSICAL EDUCATION AND DANCE (RPED)

Special fees apply to many activity courses which are in addition to regular registration fee. Consult with the department prior to registration.

100-199 RECREATION-PHYSICAL EDUCATION ACTIVITY CLASSES
A maximum of three credits from 100-199 may be taken during any one semester or summer session except for special programs listed in the class schedule. When beginning, intermediate or advanced classes are scheduled in an activity, the student should consult the department to determine in which level to enroll. A student may enroll in the same class four times for credit.

200-797 RECREATION-PHYSICAL EDUCATION THEORY CLASSES

100-199 ACTIVITY CLASSES (0 + 2) 1 credit *S/U only*

AQUATICS
101 Diving
102 Lifeguard Training
103 Sailing
104 Scuba
105 Swimming, Beginning[1]
106 Swimming, Intermediate
107 Swimming, Advanced
108 Swimming, Synchronized

DANCE[2]
110 Modern Dance, Beginning[1]
111 Modern Dance, Intermediate
112 Modern Dance, Advanced
115 Dance, Social
116 Dance Styles: Afro-Haitian, Tap, or Musical Comedy
117 Dance, Improvisation
118 Dance, Repertory
119 Dance, Jazz
120 Ballet, Beginning[1]
121 Ballet, Intermediate
122 Ballet, Advanced

GAMES (COURT)
125 Gymnastics
126 Basketball
127 Team Handball
128 Badminton
129 Softball
130 Handball, Beginning[1]
131 Handball, Inter.-Adv.
132 Racquetball, Beginning[1]
133 Racquetball, Inter.-Adv.
134 Squash
135 Tennis, Beginning[1]
136 Tennis, Intermediate
137 Tennis, Advanced
138 Volleyball, Beginning[1]
139 Volleyball, Inter.-Adv.

MOUNTAIN SPORTS
140 Angling and Casting
141 Backpacking
142 Bike Touring
143 Mountaineering
144 Orienteering
145 Rock Climbing, Beginning
146 Rock Climbing, Inter.-Adv.
147 Skiing, Alpine
148 Ski Touring

MARTIAL ARTS
152 Karate, Beginning[1]
153 Karate, Inter.-Adv.
154 Judo, Beginning[1]
155 Judo, Inter.-Adv.

[1]Maximum of 2 credits.
[2]Additional dance courses: RPED 219, 222, 261, 262, 360, 361, 460, 461, 660, 661.

MISCELLANEOUS ACTIVITIES
156 Archery
157 Bicycling
158 Bowling, Beginning[1]
159 Bowling, Inter.-Adv.
160 Golf, Beginning[1]
161 Golf, Intermediate
162 Golf, Advanced
163 Horsemanship (0 + 3)
165 Skating, Ice
166 Skating, Roller
168 Soccer
169 Yoga

CONDITIONING
174 Conditioning, Rhythmic Aerobic, Beginning
175 Conditioning, Rhythmic Aerobic, Intermediate
176 Conditioning, Rhythmic Aerobic, Advanced
177 Fitness Assessment and Exercise Prescription
178 Conditioning, Water Exercise
179 Conditioning, Intercollegiate Athletics
180 Conditioning and Body Building (Men and Women)
181 Conditioning, ROTC
182 Jogging
183 Weight Lifting

INTERCOLLEGIATE COMPETITIVE ACTIVITIES
184 Intercollegiate Baseball
185 Intercollegiate Basketball
186 Intercollegiate Boxing
187 Intercollegiate Cross Country
188 Intercollegiate Football
190 Intercollegiate Golf
193 Intercollegiate Skiing
194 Intercollegiate Softball
195 Intercollegiate Swimming
196 Intercollegiate Tennis
197 Intercollegiate Track and Field
198 Intercollegiate Volleyball

201 INTRODUCTION TO RECREATION AND PHYSICAL EDUCATION (2 + 2) 3 credits
Background, aims, objectives and current trends in RPED; skill and proficiency tests required for all RPED majors and minors.

202 THEORY OF MOVEMENT (2 + 0) 2 credits
Analysis of movement; comparison of movement patterns, purposes and organizations within sports and dance.

204, METHODS OF PLANNING AND EVALUATION IN ACTIVITIES (1 + 2) 2 credits
Techniques of assessment and pre-teaching activities that involve developing an instructional guide that incorporates concepts, objectives, and plans for teaching a subject, unit, or lesson.

216 METHODS OF TEACHING CROSS COUNTRY SKIING (1 + 2) 2 credits
Designed for experienced cross country skiers who wish to become competent cross country ski instructors.

217 METHODS OF TEACHING WATER SAFETY (1 + 2) 2 credits
Water safety instructor course. American Red Cross Certificate awarded upon completion. Prerequisite: Life Saving Certificate.

218 METHODS OF TEACHING SKIING (1 + 2) 2 credits
Instruction in American, Austrian and French ski systems. Progressions, finished technical forms of ski maneuvers, mechanics and correction of errors.

219 DANCE IN ELEMENTARY EDUCATION (1 + 2) 2 credits
Methods of teaching a comprehensive elementary school dance program including movement exploration, creative dance-making, dance and rhythmic skills and simple folk dances.

Courses numbered 220 through 231 are designed for majors and minors in RPED.

240 RECREATION AND PLAYGROUND LEADERSHIP (1 + 2) 2 credits
Application of leadership techniques to community recreation and playground programs. Instruction and practical experience in specific recreation leadership skills.

250 BASIC AND EMERGENCY WATER SAFETY, INCLUDING CPR (0 + 2) 1 credit

[1]Maximum of 2 credits.

251 METHODS OF TEACHING ARCHERY AND BADMINTON (0 + 2) 1 credit

252 METHODS OF TEACHING BASKETBALL AND TUMBLING (0 + 2) 1 credit

253 METHODS OF TEACHING DANCE AND RHYTHMS (1 + 2) 2 credits

254 METHODS OF TEACHING FLAG FOOTBALL AND WRESTLING (0 + 2) 1 credit

255 METHODS OF TEACHING GOLF AND TENNIS (0 + 2) 1 credit

256 METHODS OF TEACHING OUTDOOR AND RECREATIONAL GAMES (0 + 2) 1 credit

257 METHODS OF TEACHING PHYSICAL FITNESS AND RHYTHMATIC EXERCISE (0 + 2) 1 credit

258 METHODS OF TEACHING SOCCER AND TEAM HANDBALL (0 + 2) 1 credit

259 METHODS OF TEACHING SOFTBALL AND VOLLEYBALL (0 + 2) 1 credit

261 INTRODUCTION TO DANCE COMPOSITION (1 + 2) 2 credits
Basic elements of choreography. Guided experiences in movement development, design and form. Prerequisite: one semester of dance.

262 DANCE PRODUCTION (2 + 2) 3 credits
Theory of and practical experience in producing a dance presentation. Prerequisite: one semester of dance or equivalent.

263 AESTHETICS AND CRITICISM (3 + 0) 3 credits
Readings and discussion of the changing perceptions, forms and trends in dance.

264 HISTORY OF DANCE I: PRIMITIVE-19TH CENTURY (3 + 0) 3 credits
Dance in primal cultures through the Romantic era.

265 HISTORY OF DANCE II: 20TH CENTURY (3 + 0) 3 credits
Survey of principal influences on and directions of dance in the 1900's, from modern ballet to music video.

270 ADVANCED FIRST AID AND EMERGENCY CARE (1 + 2) 2 credits
American Red Cross certificate awarded upon completion.

271 INSTRUCTOR'S FIRST AID (2 + 0) 2 credits
Regular Red Cross course. Those completing the course may be designated first-aid instructors. Prerequisite: RPED 270 or First Aid Certificate.

290 FIELD EXPERIENCES IN RECREATION OR PHYSICAL EDUCATION (0 + 3) 1 credit
Directed field work experience in teaching and/or directing physical education activities for school or recreation groups. Maximum of 3 credits.

299 INDEPENDENT STUDY IN RECREATION OR PHYSICAL EDUCATION (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of recreation or physical education not covered in other undergraduate courses. Maximum of 4 credits.

301 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION AND ATHLETICS (3 + 0) 3 credits
Principles and methods of organizing and administering physical education and athletics in secondary schools. Prerequisite: RPED 201.

302 ORGANIZATION AND ADMINISTRATION OF INTRAMURAL AND RECREATION PROGRAMS (1 + 3) 2 credits
Theory of and active participation in the organization and administration of intramural and recreation sports programs.

321 ORGANIZATION AND JUDGING OF GYMNASTIC MEETS (0 + 2) 1 credit
Prerequisite: competitive or teaching experience in gymnastics.

322 ORGANIZATION AND JUDGING OF TRACK AND FIELD MEETS (0 + 2) 1 credit
Prerequisite: RPED 326.

323 THEORY OF BASEBALL (2 + 2) 3 credits
Lectures on theory of baseball; teaching techniques and practical demonstrations. Designed for those who wish to coach.

324 THEORY OF BASKETBALL (2 + 2) 3 credits
Lectures on theory of basketball; teaching techniques and practical demonstrations. Designed for those who wish to coach.

325 THEORY OF FOOTBALL (2 + 2) 3 credits
Lectures on theory of football; teaching techniques and practical demonstrations. Designed for those who wish to coach.

326 THEORY OF TRACK AND FIELD (2 + 2) 3 credits
Lectures on theory of track and field; teaching techniques and practical demonstrations. Designed for those who wish to coach.

327 THEORY OF SOFTBALL AND VOLLEYBALL (2 + 2) 3 credits
Lectures on theory of softball and volleyball; teaching techniques and practical demonstrations. Designed for those who wish to coach.

330 OFFICIATING MAJOR SPORTS (2 + 0) 2 credits
Interpretations of rules, methods of officiating and characteristics of officials. Coeducational class: men's major sports in the fall semester, women's major sports in the spring semester. Maximum of 4 credits; one fall semester and one spring semester.

331 PSYCHOLOGY OF COACHING (3 + 0) 3 credits
Role of psychology in coaching athletic activities. Prerequisites: RPED 201, 323 or 324 or 325 or 326.

340 CAMPING AND OUTDOOR RECREATION (1 + 2) 2 credits
Practices and principles of camping in relation to school curriculum. Campcraft skills, techniques of group work, program planning and camp counseling.

341 PLANNING CONCEPTS FOR OUTDOOR RECREATION (3 + 0) 3 credits
Preparing, organizing and directing outdoor recreational facilities.

342 COMMUNITY RECREATION (2 + 2) 3 credits
Operation of a recreation department and its relationship to other community agencies.

343 RECREATION FOR LATER LIFE (3 + 0) 3 credits
Practices and principles of recreation for the aged. Planning and directing activities.

350 TEACHING PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (2 + 2) 3 credits
Curriculum planning, lesson plans, and teaching methods for the classroom teacher with lab teaching experience.

351 PHYSICAL EDUCATION ACTIVITIES FOR PRIMARY GRADES K-3 (2 + 2) 3 credits
Intensive study of movement activities and teaching methods in the K-3 curriculum. Practical experience teaching in lab and public schools.

352 PHYSICAL EDUCATION ACTIVITIES FOR INTERMEDIATE GRADES 4-8 (2 + 2) 3 credits
Teaching lifetime fitness activities, fitness concepts and basic skills for lifetime sports participation. Practical experience in lab and public schools.

354 PERSONAL HEALTH AND LIFE STYLES (3 + 0) 3 credits
(See H R 354 for description.)

360 COMPARATIVE DANCE STYLES (2 + 2) 3 credits
In-depth study of selected dance forms; includes repertory and performance. Prerequisite: intermediate/advanced dance technique.

363 CONCERT CHOREOGRAPHY (0 + 3 per credit) 1 or 2 credits
Directed student choreographic projects for public performance; by audition only. Maximum of 6 credits.

364 DANCE PEDAGOGY (2 + 1) 2 credits
Foundations of ballet and modern dance techniques and teachings. Prerequisite: advanced technique level.

365 ART OF PERFORMANCE (1 + 2) 2 credits
Elements of the act of presentation: preparation, intent, focal skills, and metaphor.

370 ATHLETIC INJURIES (1 + 2) 2 credits
Prevention and treatment of common athletic injuries, including practical application.

371 METHODS OF TEACHING HEALTH (3 + 0) 3 credits
Emphasis on current health issues relevant for physical education majors to teach grades K through 12. Prerequisite: RPED 201.

372 METHODS OF TEACHING PHYSICAL EDUCATION (3 + 0) 3 credits
Preparation for student teaching.

373 FIELD EXPERIENCE IN RECREATIONAL CRAFTS (1 + 3) 2 credits
Crafts as applied to recreation. Major students assigned in crafts area of Reno Recreation Department under the supervision of staff member.

396 PRACTICAL EXPERIENCE IN ACTIVITY CLASSES (0 + 2) 1 credit
Students assist in advanced work in physical education activities classes. Maximum of 3 credits.

401, 601 EVALUATION AND MEASUREMENT IN PHYSICAL EDUCATION (2 + 0) 2 credits
Statistical methods including interpretations and presentation of data and basic computer programs. Prerequisite: RPED 201, 204 and three credits above the 300 level in RPED.

402, 602 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION (2 + 0) 2 credits
Historical analysis of physical education. Philosophical bases and principles as guidelines for the profession. Prerequisite: RPED 201 and 4 credits above 300 in RPED.

403 KINESIOLOGY (3 + 0) 3 credits
Mechanical and anatomical analysis of motion as a basis for the teaching of RPED activities. Designed for those majoring in health science fields. Prerequisite: BIOL 262, 263.

405, 605 MOTOR LEARNING (3 + 0) 3 credits
Motor-perceptual system processes, with special attention to skill acquisition and skill levels as categories of human learning.

406, 606 PHYSIOLOGY OF EXERCISE (3 + 0) 3 credits
Physiological bases for planning RPED programs. Observations of respiratory, circulatory, nervous and metabolic adjustments to physical exercise. Designed for those majoring in health science fields. Prerequisite: BIOL 262, 263.

407, 607 THERAPEUTIC ASPECTS OF MOVEMENT (3 + 0) 3 credits
Therapeutic exercises and muscular activities adapted to individuals with physical handicaps, tensions or low muscular activity levels.

408, 608 PHYSICAL FITNESS ASSESSMENT AND TRAINING (2 + 2) 3 credits
Theory and practice of determining fitness levels and developing appropriate exercise programs.

420 COACHING CLINIC (2 + 0) 2 credits *S/U only*
Lectures and demonstrations in techniques of coaching major sports for men. A maximum of 4 credits is acceptable toward the satisfaction of any department, college or university requirement.

421, 621 LIFETIME SPORTS PROGRAM (2 + 2) 3 credits
Analyses, development and maintenance of skills. Purchase and maintenance of equipment. Prerequisite: 4 credits from RPED 220, 221, 222, 228, 229.

422 WOMEN'S COACHING WORKSHOP (1 + 2) 2 credits
Instruction and participation in techniques of coaching women's sports. Maximum of 4 credits.

440, 640 RECREATION ADMINISTRATION (2 + 0) 2 credits
Comprehensive study of recreation administration including community organization, promotion, reports, public relations and leadership selection. Prerequisite: RPED 201, 240 (4 credits) and 2 credits above 300.

450, 650 MOVEMENT EDUCATION FOR ELEMENTARY SCHOOL CHILDREN (1 + 2) 2 credits
Problem-solving approach to the teaching of motor skills to children. Prerequisite: 12 credits in RPED or elementary school teaching certificate.

451, 651 ADAPTED PHYSICAL EDUCATION (3 + 0) 3 credits
Understanding the role of physical education in providing special education service to the handicapped. Basic information regarding growth and development of handicapped.

452, 652 SOCIAL PSYCHOLOGY OF SPORTS AND RECREATION (2 + 0) 2 credits
Nature of the person and interpersonal relationships in sport and recreation environments. Topics include power, status, motivation, attitude, behavior and leadership.

461, 661 DANCE WORKSHOP (1 + 2) 2 credits
Intermediate and advanced study of dance composition; philosophy, principles, conventional forms and choreographic resources. Prerequisite: intermediate dance technique. Maximum of 4 credits.

462 PHYSICAL EDUCATION WORKSHOP (0 + 2) 1 credit
Recent trends, changes and techniques in physical education activities.

492, 692 RECREATION INTERNSHIP 8 to 10 credits
Practical work experience in public or private recreation agencies. Advance approval required. Prerequisite: 20 credits in recreation completed and recreation major.

493 INDEPENDENT STUDY IN DANCE (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of dance not covered in other undergraduate courses. Maximum of 4 credits.

495, 695 FIELD STUDIES IN RECREATION 1 to 6 credits
Directed field work in observing recreation programs and facilities outside Nevada. Maximum of 6 credits.

496, 696 FIELD STUDIES IN PHYSICAL EDUCATION 1 to 6 credits
Directed field work in observing physical education programs and facilities outside Nevada. Maximum of 6 credits.

497, 697 SPECIAL PROBLEMS IN PHYSICAL EDUCATION (2 + 0) 2 credits
Maximum of 4 credits. Prerequisite: 12 credits in RPED.

498 INDEPENDENT STUDY IN PHYSICAL EDUCATION
(1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of physical education not covered in other undergraduate courses. Maximum of 4 credits.

499 INDEPENDENT STUDY IN RECREATION (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of recreation not covered in other undergraduate courses. Maximum of 4 credits.

701 ADVANCED KINESIOLOGY (2 + 0) 2 credits
Detailed study of the application of anatomical, mechanical and physiological principles to human motion and sports skill. Prerequisite: RPED 403.

702 CRITICAL ISSUES IN PHYSICAL EDUCATION (2 + 0) 2 credits
Examination of basic philosophies and objectives of physical education in relation to current societal needs.

703 CURRICULUM CONSTRUCTION IN PHYSICAL EDUCATION
(2 + 0) 2 credits
Social and physiological principles underlying the development of a physical education curriculum consistent with goals of secondary education. Prerequisite: 24 credits in RPED.

704 PHYSICAL EDUCATION SEMINAR (2 + 0) 2 credits
Intensive study and discussion of selected areas in physical education. Maximum of 4 credits. Prerequisite: 15 credits in RPED.

705 PHYSIOLOGICAL BASES OF CONDITIONING PROGRAMS
(2 + 0) 2 credits
Systematic analysis of the physiological results of conditioning programs with particular emphasis on changes in muscular strength, endurance and coordination. Application of basic principles to the organization of conditioning programs. Prerequisite: RPED 406.

771 ATHLETIC INJURIES II (1 + 2) 2 credits
Methods of caring for athletic injuries. Prerequisite: RPED 370.

792 READINGS IN PHYSICAL EDUCATION AND RECREATION
(1 + 0) 1 credit
Designed to acquaint advanced students with recent professional literature in physical education and recreation. One conference period per week. Maximum of 3 credits. Prerequisite: 15 credits in RPED.

793 INDEPENDENT PROJECTS IN PHYSICAL EDUCATION
(1 or 2 + 0) 1 or 2 credits
Prerequisite: 15 graduate credits in RPED courses.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits
Required of all graduate students who wish to complete an M.S. degree under Plan B.

797 THESIS 1 to 6 credits

Inactive Courses

100 CANOEING
114 SQUARE DANCE
149 FOIL FENCING
150 BEGINNING SABRE FENCING
151 INTERMEDIATE AND ADVANCED SABRE FENCING
164 SHOOTING
189 INTERCOLLEGIATE BOWLING
191 INTERCOLLEGIATE GYMNASTICS
192 INTERCOLLEGIATE RIFLERY
199 INTERCOLLEGIATE WRESTLING

RELIGIOUS STUDIES (R ST)

Interdisciplinary Courses

101 INTRODUCTION TO RELIGIOUS STUDIES (3 + 0) 3 credits
Varieties of religious expression: belief, ritual, scripture, art. Religious issues: God, death, evil, salvation. Methods of studying religion.

SOCIAL WORK (S W)

220 INTRODUCTION TO SOCIAL AND HEALTH SERVICES
(3 + 3 or 0) 3 or 4 credits
Social and health concerns with focus on the institutions and professions which address those problems. Interdisciplinary teamwork and the systems approach emphasized. Includes 45 hours of community volunteer service. (Same as CHS 220.)

230 CRISIS INTERVENTION (3 + 0) 3 credits
Analysis of types of crisis, crisis theory, effects of crisis on the community, methods of and community resources for crisis intervention. Prerequisite: PSY 101.

300 COMMUNICATION SKILLS IN SOCIAL AND HEALTH CARE
(2 + 2) 3 credits
(See CHS 300 for description.)

301 AGING: AN INTERDISCIPLINARY APPROACH (2 + 2) 3 credits
(See CHS 301 for description.)

320 INDIVIDUAL IN SOCIETY (3 + 0) 3 credits
Human growth and behavior within a sociocultural context, with special attention to professional practice and social policy formation in the helping professions. Prerequisite: S W 220.

330 METHODS OF SOCIAL WORK I (3 + 0) 3 credits
Principles of casework, group work, and community organization. Intervention at individual, family, peer group, and community level. Prerequisite: S W 220, 234.

331 METHODS OF SOCIAL WORK II (3 + 0) 3 credits
Continuation of S W 330. Prerequisite: S W 330. Corequisite: S W 480.

335 TEAM APPROACH TO SOCIAL WORK AND HEALTH CARE
(3 + 0) 3 credits
(See CHS 335 for description.)

340 HUMAN VALUES AND PROFESSIONAL ETHICS (3 + 0) 3 credits
(See CHS 340 for description.)

375 THE CHILD AND THE LAW (3 + 0) 3 credits
Philosophical, historical, legal origins of the government's role in child welfare services. Knowledge, skils, attitudes to aid in delivery of legal services to children and families.

378 CONTEMPORARY ISSUES IN SOCIAL WELFARE OR HEALTH
(3 + 0) 3 credits
Analysis of current trends. Possible topics: guaranteed income, processes in social legislation, family and group therapy, health care systems, holistic health care, national health insurance. Maximum of 6 credits.

390 INTRODUCTION TO RESEARCH (3 + 0) 3 credits
Methods for practitioners, community organizers and other professionals in social service and health education settings. Evaluation and interpretation of research and statistical analysis. (Same as CHS 390.)

430, 630 SOCIAL SERVICES IN DEATH AND DYING (3 + 0) 3 credits
Examines attitudes towards death and associated grief processes. Prerequisite: S W 230 or 320. (Same as CHS 430, 630.)

437, 637 HANDICAPPED PERSON IN THE COMMUNITY (3 + 0) 3 credits
Assessment of the needs of physically and mentally handicapped persons and analysis of current programs to help them attain constructive lives. Prerequisite: S W 220.

450, 650 SOCIAL WELFARE POLICY (3 + 0) 3 credits
Analysis of the development and implementation of social welfare programs and services. Examines the social worker's role in the policy making process. Prerequisite: S W 220.

460, 660 THE LAW AND SOCIAL SERVICES (3 + 0) 3 credits
Legal foundations and structures of practice and administration in social services. Legal aspects of all modes of intervention in social problems. Prerequisite: S W 220.

464, 664 AIDS: SOCIAL AND HEALTH CARE CONCERNS (3 + 0) 3 credits
(See CHS 464, 664 for description.)

472, 672 WOMEN: SOCIAL AND HEALTH CARE CONCERNS
(3 + 0) 3 credits
(See CHS 472, 672 for description.)

473, 673 ETHNIC AND RACIAL MINORITIES SOCIAL AND HEALTH CARE CONCERNS (3 + 0) 3 credits
Analysis of social and health care problems unique to ethnic and racial

minorities in the U.S.; knowledge of cultural characteristics to be considered in service delivery. Prerequisite: S W 220. (Same as CHS 473, 673.)

474, 674 SOCIAL INTERVENTION IN ALCOHOL AND DRUG ABUSE (3 + 0) 3 credits
(See CHS 474, 674 for description.)

477, 677 THE CHILD IN THE COMMUNITY (3 + 0) 3 credits
Analysis of the development and current programs in child welfare including the legal status of children. Prerequisite: SOC 101 or PSY 101.

480-481 FIELD EXPERIENCE IN SOCIAL WORK (2 + 12) 5 credits each *S/U only*
One-year course combining a two-hour seminar with at least 12 hours of field experience in an approved social or correctional agency under the supervision of an experienced agency worker. Prerequisite: S W 330.

482, 682 FIELD WORK IN GERONTOLOGY (0 + 9) 3 credits
(See CHS 482, 682 for description.)

486, 686 SUPERVISION AND ADMINISTRATION IN SOCIAL WORK (3 + 0) 3 credits
Analysis and application of the theory and methods of supervision and administration in health and social work settings. Emphasis on case studies. Prerequisite: S W 330.

495, 695 GERONTOLOGY RESEARCH: DIRECTED INDEPENDENT STUDY (0 + 9) 3 credits
(See CHS 495, 695 for description.)

496, 696 DIRECTED INDEPENDENT RESEARCH 1 to 3 credits
Guided research in an area of mutual interest to the student and faculty. Maximum of 6 credits.

498, 698 SPECIAL PROBLEMS 1 to 3 credits
Maximum of 6 credits.

499, 699 INDIVIDUAL READING 1 to 3 credits
Supervised reading with regular conferences between student and instructor. Maximum of 6 credits.

610 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3 + 0) 3 credits
Social systems framework for analysis of behavior including theories relating to biological, psychological, cognitive, and social development, both normal and abnormal.

615 FOUNDATOINS OF SOCIAL WELFARE (3 + 0) 3 credits
Key issues and concepts associated with policies and programs affecting children, families, and older adults in contemporary American society.

620 FOUNDATIONS OF PRACTICE (3 + 0) 3 credits
Basic principles and concepts of social work intervention, including casework, group work, and community organization.

636 STRUCTURAL OPPRESSION (2 + 0) 2 credits
Impact of institutional racism on victims. Emphasis on moral, ethical, and professional responsibility of social worker.

640 RESEARCH METHODS (3 + 0) 3 credits
Research design for both quantitative and qualitative studies. Emphasis on practice evaluation, needs assessment, and critical evaluation of research findings. Prerequisite: introductory statistics.

714 ANALYSIS OF ORGANIZATIONS AND COMMUNITIES (3 + 0) 3 credits
Characteristics and dynamics of organizations and communities as they related to social work practice.

715 POLICY: RULE MAKING AND IMPLEMENTATION (3 + 0) 3 credits
Perspectives on policymaking, implementation and evaluation, community organization, and political processes. Prerequisite: S W 615.

721 INTERVENTION I—DIRECT (3 + 0) 3 credits
In-depth examination of varied strategies for subventionary practice. Subject will include experiential activities.

725 INTERVENTION II—INDIRECT (3 + 0) 3 credits
Examination of the characteristics, methods, processes, and requisite competencies of instrumental practice. Prerequisite: S W 721.

727 INTERVENTION III—SPECIAL POPULATIONS (3 + 0) 3 credits
Concentration on methods of practice with particular vulnerable groups. Prerequisite: S W 721, 725.

738 HUMAN DIVERSITY AND SPECIAL POPULATIONS (2 + 0) 2 credits
Study of differences in race, ethnicity, gender, age, sexual orientation, class, religion, culture and physical and mental handicaps using biology, sociology, psychology and anthropology.

739 GENDER ISSUES IN SOCIAL WORK (2 + 0) 2 credits
Examination of the range of issues and problems unique to or that impact differentially on women. Emphasis on relationship to practice.

740 ADVANCED RESEARCH METHODS (2 + 3) 3 credits
Principles of research methodology applied to practice or policy with children and families or older adults. Research project carried out under supervision. Prerequisite: S W 640.

780 PRACTICUM (2 + 20) 6 credits
Supervised social work practice in community social agency with focus on development of foundation skills for practice with vulnerable population groups.

790-791 ADVANCED PRACTICUM I and II (2 + 20) 6 credits each
Supervised social work practice in a community social agency with focus on development of advanced skills for practice with disadvantaged and vulnerable populations. Prerequisite: S W 780 or equivalent.

792 PROFESSIONAL ISSUES SEMINAR (1 + 0) 1 credit
Focus on selected topics related to social work practice with strong emphasis on values and ethics.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

SOCIOLOGY (SOC)

101 PRINCIPLES OF SOCIOLOGY (3 + 0) 3 credits
Sociological principles underlying the development, structure and function of culture, society, human groups, personality formation and social change.

102 SOCIAL PROBLEMS (3 + 0) 3 credits
Selected social problems, their causation and proposed solutions.

202 AMERICAN SOCIETY (3 + 0) 3 credits
Analysis of the structure of American society; its historical development and its contemporary institutional forms.

204 COMPARATIVE SOCIOLOGY (3 + 0) 3 credits
Comparative analysis of social structure in traditional and modern societies. Emphasis on a macro-sociological approach in the study of socioeconomic processes in different social systems.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3 + 0) 3 credits
(See ANTH 205 for description.)

207 INTRODUCTION TO MAIN CURRENTS IN SOCIOLOGICAL THOUGHT (3 + 0) 3 credits
The works of classical and contemporary sociological theorists. Emphasis on the development of sociological theory in the U.S. Prerequisite: SOC 101.

210 STATISTICAL METHODS (3 + 2) 4 credits
(See PSY 210 for description.)

261 SOCIAL PSYCHOLOGY I: THE PERSON AND SOCIAL INFLUENCE (3 + 0) 3 credits
(See PSY 261 for description.)

275 MARRIAGE AND THE FAMILY (3 + 0) 3 credits
Sex roles, dating patterns, mate selection, marital interaction and success and alternative forms of marriage and family life.

333 SOCIOLOGY OF RELIGION (3 + 0) 3 credits
Sociological and historical examination of institutionalized and non-institutionalized religion with emphasis on religions in America. Prerequisite: SOC 101.

342 SOCIAL STRATIFICATION (3 + 0) 3 credits
Analysis of major theories of stratification and inequality. Historical development of class systems with emphasis on the social class structure of American society. Prerequisite: SOC 101.

345 SOCIAL MOVEMENTS AND COLLECTIVE BEHAVIOR (3 + 0) 3 credits
Processes involved in collective behavior and social movements; includes such topics as rumor, panic, riots, disaster and social movement organizations. Prerequisite: SOC 101.

350 SOCIAL CHANGE (3 + 0) 3 credits
Institutional change emphasizing the comparative perspective. A survey of various theories of social change and their applications in the analysis of various historical and contemporary societies. Prerequisite: SOC 101.

352 JUVENILE DELINQUENCY (3 + 0) 3 credits
Causes, conditions and prevention of juvenile crime. Prerequisite: SOC 101. Not open to those who have taken SOC 366 for credit.

362 SOCIAL PSYCHOLOGY II: GROUP STRUCTURE AND PROCESS (3 + 0) 3 credits
Topics include interpersonal attraction, power, status, group norms, leadership, group problem-solving, roles and role strain. Prerequisite: PSY 101 or SOC 101. (Same as PSY 362.)

366 CRIMINOLOGY (3 + 0) 3 credits
Major theories and research findings on the causes of delinquency and crime. Prerequisite: SOC 101. Not open to those who have taken SOC 352 for credit. (Same as C J 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 C J 367.)

369 SOCIOLOGY OF LAW (3 + 0) 3 credits
Examination of relationship of legal institutions and society, focusing on law as a social product and the social psychology of jury processes and plea bargaining.

371 SOCIAL ORGANIZATION (3 + 0) 3 credits
Examination of major social institutions in terms of structure, function and change. Prerequisite: SOC 101.

373 POLITICAL SOCIOLOGY (3 + 0) 3 credits
Sociological theories and concepts brought to bear on various aspects of political theory and behavior. Prerequisite: SOC 101.

376 THE COMMUNITY (3 + 0) 3 credits
Description and analysis of American urban, suburban and rural communities including communes. Emphasis on variation in community institutions and processes. Prerequisite: SOC 101.

379 ETHNIC AND RACE RELATIONS (3 + 0) 3 credits
Social, psychological, economic and political aspects of minority problems in American society. Prerequisite: SOC 101. Not applicable toward an advanced degree in sociology.

391 BUREAUCRACY AND LARGE SCALE ORGANIZATIONS (3 + 0) 3 credits
Sociology of modern large scale organizations with emphasis on government agencies, corporations, political parties and labor unions. Prerequisite: SOC 101.

392 RESEARCH METHODS (3 + 0) 3 credits
Major techniques and problems encountered in both survey and experimental research in the behavioral sciences. Prerequisite: PSY 101 or SOC 101. (Same as PSY 392.)

393 INDUSTRIAL SOCIOLOGY (3 + 0) 3 credits
Examinations of various work settings such as factories and "white collar" industries and their impact upon individual employees, emphasizing the development of alienation. Prerequisite: SOC 101.

401-402, 601-602 ADVANCED GENERAL SOCIOLOGY (3 + 0) 3 credits
Intensive survey of major areas of sociology. Prerequisite: SOC 101 or admission to honors program.

404, 604 SOCIOLOGY OF DEVELOPING SOCIETIES (3 + 0) 3 credits
Analysis of major theories of development as applied to the experience of contemporary Third World societies. The socioeconomic development in countries of Asia, Africa and Latin America examined from a comparative-historical perspective. Prerequisite: SOC 101.

410, 610 SOCIOLOGY OF AGING (3 + 0) 3 credits
Examination of sociological factors affecting the aging process in modern societies. Prerequisite: SOC 101.

422, 622 SOCIAL PSYCHOLOGICAL THEORIES (3 + 0) 3 credits
Review of theories in social psychology. Emphasizes classical studies and the developmental trends which led to current perspectives in social psychology. Prerequisite: SOC 101 or PSY 101. (Same as PSY 422.)

427, 627 COMPUTER APPLICATIONS IN SOCIAL AND BEHAVIORAL SCIENCE (3 + 0) 3 credits
Advanced use of computer in a variety of areas of the social and behavioral sciences. Prerequisite: SOC 210 or PSY 210, SOC 101 or PSY 101. (Same as PSY 427, 627.)

453, 653 THE SOCIOLOGY OF SEX (3 + 0) 3 credits
Socialization to sex roles, effects of sex on personality, relations between the sexes in organizational and informal groups, sexual deviancy and alternative sex roles. Prerequisite: SOC 101.

463, 663 SOCIAL PSYCHOLOGY III: SOCIAL PSYCHOLOGY OF EDUCATION (3 + 0) 3 credits
(See PSY 463 for description.)

464, 664 CONFORMITY AND DEVIATION (3 + 0) 3 credits
Systematic analysis of the sources of normative and nonnormative conduct. The nature and types of social deviations, their causes, description and consequences. Prerequisite: SOC 101.

480, 680 THE FAMILY (3 + 0) 3 credits
Forms and functions of the family as a social institution. Emphasis on present trends. Prerequisite: SOC 101.

485, 685 SOCIOLOGY OF KNOWLEDGE (3 + 0) 3 credits
Reciprocal influence of social structure on personal perception and values. Prerequisite: SOC 101.

491, 691 HISTORY OF SOCIAL THOUGHT (3 + 0) 3 credits
Development of social and economic thought from prehistoric times to the period of the English and French Enlightenment. Prerequisite: SOC 101.

492, 692 CONTEMPORARY SOCIAL THEORY (3 + 0) 3 credits
Development of social theory from the Enlightenment to the present day. Emphasis on recent developments in theory. Prerequisite: SOC 101, SOC 491.

494 SOCIAL FOUNDATIONS OF ECONOMIC LIFE (3 + 0) 3 credits
Influence of noneconomic institutions on the productive relations of society. The family, the political community, religion and culture as they affect the economic structure of modern society.

497, 697 SPECIAL TOPICS 1 to 3 credits
Seminar on selected problems from the study of sociology. Maximum of 6 credits. Prerequisite: SOC 101.

499, 699 SPECIAL PROBLEMS IN SOCIOLOGY 1 to 3 credits
Maximum of 6 credits.

701 INDIVIDUAL READING 1 to 5 credits
Supervised reading with regular conferences between student and instructor. Maximum of 6 credits.

702 GRADUATE RESEARCH 1 to 5 credits
Research projects in sociology carried out under supervision. Maximum of 6 credits.

704 SEMINAR IN SOCIAL ORGANIZATION (3 + 0) 3 credits
Consideration of selected topics in social organization.

705 SEMINAR IN SOCIAL THEORY (3 + 0) 3 credits
Consideration of selected topics on sociological theory.

706 INTERMEDIATE STATISTICS I (3 + 0) 3 credits
(See PSY 706 for description.)

707 INTERMEDIATE STATISTICS II (3 + 0) 3 credits
(See PSY 707 for description.)

718 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
(See PSY 718 for description.)

725 SOCIALIZATION (3 + 0) 3 credits
Social psychological approaches to the individual, including field theory, theories of balance and congruency, and other conceptual approaches to social perception, interpersonal attraction and stability of personality. (Same as PSY 725.)

726 INTERPERSONAL TRANSACTIONS (3 + 0) 3 credits
Basic processes of social interaction including person perception, communication, attraction and power in social relationships. (Same as PSY 726.)

727 GROUP BEHAVIOR (3 + 0) 3 credits
Analysis of behavior in small and intermediate size groups, including organizational behavior and intergroup relations. (Same as PSY 727.)

728 COLLECTIVE BEHAVIOR AND MASS SOCIETY (3 + 0) 3 credits
Analysis of social behavior at the societal level, including attitude formation, mass communication, crowd behavior and social movements. (Same as PSY 728.)

737 SURVEY RESEARCH METHODS (3 + 0) 3 credits
Strategies and techniques of survey research, including planning, sampling, questionnaire construction, coding and data analysis. (Same as PSY 737.)

738 METHODS AND INNOVATIONS IN ASSESSMENT (3 + 0) 3 credits
(See PSY 738 for description.)

764 SPECIAL TOPICS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
(See PSY 764 for description.)

795 COMPREHENSIVE EXAMINATION 0 credits *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Course

384 POPULATION (3 + 0) 3 credits

SPEECH COMMUNICATION (SPCM)

105-106, 205-206, 305-306, 405-406 INTERCOLLEGIATE FORENSICS
(0 + 3) 1 credit each
Participation in intercollegiate debate and individual events as a member of the university debate squad, plus participation in related on-campus events. Does not fulfill requirements for a major in speech and communication.

113 FUNDAMENTALS OF SPEECH COMMUNICATION (3 + 0) 3 credits
Principles and theories of speech communication. Participation in public speaking and interpersonal communication activities.

210 INTRODUCTION TO COMMUNICATION (3 + 0) 3 credits
Survey of theories of human communications; study of the nature of speech communication process.

212 INTRODUCTION TO COMMUNICATION RESEARCH (3 + 0) 3 credits
Basic approaches to research in speech communication. Introduction to historical, analytical, critical and empirical methods of investigation.

213 PUBLIC SPEAKING (3 + 0) 3 credits
Theory and practice in the composition and delivery of public speeches. Advanced techniques of message development, organization and style.

217 ARGUMENTATION AND DEBATE (3 + 0) 3 credits
Theory and practice of oral argumentative discourse; intensive study of argumentative principles and debate fundamentals; participation in class discussions, speeches and debates.

315 SMALL GROUP COMMUNICATION (3 + 0) 3 credits
Speech communication in face-to-face and coacting groups. Analysis of group cohesiveness, leadership, role structure, information processing and decision-making.

319 LEGAL ARGUMENTATION (3 + 0) 3 credits
Practice of argumentation theory in law, utilizing legal research, writing, and speaking; designed especially for the prelaw student.

329 BUSINESS AND PROFESSIONAL SPEAKING (3 + 0) 3 credits
Practice of the principles of public speaking, conference methods and group discussions which are applicable to the business and professional community.

410, 610 NONVERBAL COMMUNICATION (3 + 0) 3 credits
Principles, implications and effects of nonverbal communication, the ways in which unspoken elements modify communication.

411, 611 INTERPERSONAL COMMUNICATION (3 + 0) 3 credits
Investigation into the role of interpersonal communication in human relations.

412, 612 INTERCULTURAL COMMUNICATION (3 + 0) 3 credits
Factors important to meaningful communication across cultures with emphasis on intercultural differences in North America.

427, 627 COMMUNICATION AND SOCIAL CHANGE (3 + 0) 3 credits
Critical review of theory and research.

428, 628 ORGANIZATIONAL COMMUNICATION (3 + 0) 3 credits
Analysis of communication functions and networks in organizational settings. Organizational structures and dynamics and their effect upon the communication process.

433, 633 HUMAN COMMUNICATION THEORY(3 + 0) 3 credits
Review and comparative analysis of contemporary behavioral theories of human communication.

434, 634 COMMUNICATION AND CONFLICT RESOLUTION
(3 + 0) 3 credits
Theory and research in conflict and negotiation; emphasis on conflict management in interpersonal settings.

435, 635 PERSUASION (3 + 0) 3 credits
Contemporary theory and research in persuasive communication; role of speech communication in changing beliefs, attitudes, values, intentions, and behavior.

480, 680 COMMUNICATION TRAINING SYSTEMS (3 + 0) 3 credits
Development and evaluation of innovative speech communication training programs and classroom methods.

490, 690 SPECIAL PROBLEMS IN SPEECH COMMUNICATION
1 to 3 credits
Designed for students who wish to study in depth a particular area of general speech, rhetoric and public address or communication theory. Maximum of 6 credit.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in speech communication. Maximum of 8 credits.

700 RESEARCH METHODS (3 + 0) 3 credits
Research methodologies in speech communication. Prerequisite: undergraduate statistics course or CAPS 440, 640.

710 SEMINAR: SMALL GROUP COMMUNICATION (3 + 0) 3 credits
Critical review of literature in problem-solving processes within the small group.

720 SEMINAR: INTERPERSONAL COMMUNICATION (3 + 0) 3 credits
Theory and research in one-to-one communication.

730 SEMINAR: ORGANIZATIONAL COMMUNICATION (3 + 0) 3 credits
Communication behavior and the evaluation-decision process in human organizations.

740 SEMINAR: PUBLIC COMMUNICATION (3 + 0) 3 credits
History and critical analysis of rhetorical advocacy.

750 SEMINAR: PERSUASION (3 + 0) 3 credits
Literature on strategies and techniques of persuasive discourse.

760 SEMINAR: COMMUNICATION THEORY (3 + 0) 3 credits
Communication theory as it applies to the design, research and management of communication systems.

793 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP: APPLIED COMMUNICATION SYSTEMS 1 to 3 credits
Professional work experience in close association with selected executives — managers in education, business and governmental agencies. Maximum of 6 credits.

Inactive Courses

430, 630 MODERN THEORIES OF PUBLIC COMMUNICATION
(3 + 0) 3 credits

SPEECH PATHOLOGY AND AUDIOLOGY (SPA)

259 PHONETICS (3 + 0) 3 credits
Practical course in the science of speech sounds with emphasis on transcription of the International Phonetic Alphabet.

310 SPEECH AND LANGUAGE DEVELOPMENT (3 + 0) 3 credits
Traditional and psycholinguistic approaches to language and speech development in the individual.

320 INTRODUCTION TO GENERAL SEMANTICS (3 + 0) 3 credits
Emphasizes the distinctively human functions of creating and using symbols. Reveals the relationship of symbol systems and the bodily process of symbolizing experience to the development of language, psycholinguistics, personality and society. Prerequisite: SPA 310.

356 SURVEY OF SPEECH PATHOLOGY (3 + 0) 3 credits
Designed particularly for the classroom teacher. Stresses correction of minor speech problems and understanding of more involved disorders.

357 COMMUNICATION SCIENCE (3 + 0) 3 credits
Anatomical, neurological, physiological, and physical bases of speech and voice production.

359 ASSESSMENT OF COMMUNICATION DISORDERS
(1 + 0 per credit) 1 to 3 credits
Developmental, environmental, organic, and psychogenic bases of disorders of speech and voice. Prerequisite: SPA 259 and 357.

360 METHODS OF CLINICAL MANAGEMENT (3 + 0) 3 credits
Therapy and clinical management of problems of defective speech. Includes clinical equipment and public school speech correction programs. Prerequisite: SPA 359.

361 ARTICULATION DISORDERS (2 + 3) 3 credits
Assessment and treatment of phonemic disorders.

362 INTRODUCTION TO AUDIOLOGY (3 + 0) 3 credits
Physics of sound, anatomy and physiology of the ear, medical and surgical aspects of hearing loss, basic audiometric techniques, and hearing conservation.

363 PRACTICUM IN SPEECH PATHOLOGY (0 + 6) 2 credits
Supervised clinic experience in the treatment and management of children and adults with speech and hearing defects. Prerequisite: SPA 259, 357, 359, 360. Maximum of 12 credits.

364 PREVENTION OF COMMUNICATIVE DISORDERS (3 + 6) 3 credits
Familiarization with developmental landmarks of communication, causes of communicative disorders, and application of methods for prevention and early intervention of communicative disorders.

365 ADVANCED AUDIOLOGICAL TESTING (3 + 0) 3 credits
Calibration of test equipment. Rationale and procedures used in the evaluation of hearing loss. Laboratory exercises. Prerequisite: SPA 362.

421 COMMUNICATION PROBLEMS OF THE AGED (3 + 0) 3 credits
Speech and hearing disorders common to the aged. Current methods of evaluation and treatment are considered.

459, 659 SEMINAR IN CLINICAL PROCEDURE (2 + 0) 2 credits
Advanced study in specialized areas of the field. Maximum of 8 credits.

460, 660 ASPECTS OF SPEECH PATHOLOGY AND AUDIOLOGY (1 + 0) 1 credit
Pathologies affecting the auditory and speech mechanisms including central nervous system involvement. Special emphasis on medical and surgical treatment and speech and language pathology from the physician's viewpoint.

461, 661 ADVANCED SPEECH PATHOLOGY (2 + 0) 2 credits
Diagnosis of speech disorders, with special emphasis on stuttering and allied problems and organic speech disorders.

463, 663 INTERNSHIP IN SPEECH PATHOLOGY AND AUDIOLOGY (0 + 18 or 24) 6 or 8 credits
Clinical experience in the diagnosis and management of children and adults with speech or hearing defects. Experience to be gained in an off-campus rehabilitation program.

464, 664 PRACTICUM IN AUDIOLOGICAL TESTING (0 + 3 or 6) 1 or 2 credits
Supervised clinical procedures in descriptive and diagnostic hearing examinations. May be repeated. Prerequisite: SPA 362, 365.

465, 665 MEDICAL AUDIOLOGY (3 + 0) 3 credits
Differential hearing tests and their interpretation from a medical and surgical viewpoint.

466, 666 REHABILITATION FOR HEARING HANDICAPPED (3 + 0) 3 credits
Problems of adjustment and language involvement of the hearing handicapped. Use of amplification, auditory training, and lipreading principles. Prerequisite: SPA 310 and 362.

467, 667 LANGUAGE DISORDERS IN CHILDREN (3 + 0) 3 credits
Conditions leading to delayed language in children. Emphasis on methods of teaching language. Prerequisite: SPA 310.

494 WORKSHOPS AND INSTITUTES 1 to 3 credits
Intensive study of special topics in speech pathology and audiology. Maximum of 6 credits.

495 INDEPENDENT STUDY 1 to 3 credits
Intensive study of special topics in speech pathology or audiology on an individual basis. Maximum of 6 credits.

720 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Research methods in the communicative arts and sciences.

721 CRANIOFACIAL DISORDERS (2 + 3) 3 credits
Causes and treatment of communicative disorders related to cleft palate and lip. The interdisciplinary team approach will be stressed.

751 DYSPHASIA (2 + 3) 3 credits
Language and speech disorders related to central nervous system deficits.

752 STUTTERING (2 + 3) 3 credits
Disorders of speech rhythm and fluency.

753 COMMUNICATION DISORDERS IN THE CEREBRAL PALSIED (3 + 0) 3 credits
Causes, assessment, and treatment of communicative disorders among the cerebral palsied.

754 SEMINAR IN PHYSICAL ANOMALIES (2 + 0) 2 credits
Anatomical and neurological deficits of the speech mechanism to include alaryngeal speech.

757 EXPERIMENTAL PHONETICS (3 + 0) 3 credits
Speech production and reception and the physical characteristics of speech and instrumentation for speech analysis.

759 SEMINAR IN CLINICAL PROCEDURES (2 + 0) 2 credits
Advanced study in specialized areas of the field. Maximum of 8 credits.

762 DISORDERS OF VOICE (2 + 3) 3 credits
Causes, diagnosis, and treatment of disorders of voice.

765 ADVANCED AUDIOLOGY (2 + 3) 3 credits
Calibration of test equipment. Rationale and procedures used in the evaluation of hearing loss. Laboratory exercises. Prerequisite: SPA 362.

767 ADVANCED PRACTICUM (0 + 6) 2 credits
Supervised clinical experience in the treatment and management of children and adults with complex communicative disorders.

768 SEMINAR IN AUDIOLOGY (3 + 0) 3 credits
Special topics; hearing aids, psychophysics of audition; current research and publications in clinical hearing measurement or rehabilitation. Maximum of 6 credits.

769 SEMINAR IN AUDIOLOGICAL MEASUREMENT (2 + 0) 2 credits
Special topics in the measurement of hearing, hearing aids, psychophysics of audition, and special tests.

793 INDEPENDENT STUDY 1 to 3 credits

794 WORKSHOPS AND INSTITUTES 1 to 3 credits
Intensive study of special topics in speech pathology or audiology. Usually offered during Summer Session. Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

SURGERY (SURG)

451, 651 CLERKSHIP (2 + 30) 12 credits
Hospital and ambulatory clinical experience to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to understanding pathophysiology and treatment of surgical diseases.

461, 661 ELECTIVES 2 to 8 credits
Elective experiences in the major surgical subspecialities including: (a) acute orthopedics, (b) anesthesiology, (c) burn surgery, (d) cardiothoracic surgery, (e) emergency room techniques, (f) acting internship in general surgery, (g) neurosurgery, (h) ophthalmology, (j) orthopedic surgery, (k) otorhinolaryngology, (m) plastic surgery, (q) trauma surgery, (r) urology, (s) thoracic surgery, (t) third-world medicine and surgery. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

490, 690 INDEPENDENT STUDY 1 to 4 credits

TEXTILE AND APPAREL MERCHANDISING (TAM)

200 SPECIAL TOPICS 1 to 6 credits
Study under supervision of a staff member on topics of special interest to the learner. Maximum of 6 credits.

202 FIELD STUDY 1 to 3 credits *S/U only*
Student-faculty seminar including group travel for field study experience. Maximum of 6 credits.

210 APPAREL PRODUCT ANALYSIS (3 + 0) 3 credits
Recognition and evaluation of commercial construction techniques as related to garment cost, durability, and appearance. Prerequisite: TAM 216.

211 PATTERN DESIGN (1 + 4) 3 credits
Basic principles of pattern construction and design through a combination of draping and drafting techniques. Prerequisite: TAM 210.

212 TEXTILE, APPAREL, AND RETAIL INDUSTRIES (3 + 0) 3 credits
Structure, operation, and interrelationship of industries involved in the production, distribution, and merchandising of textile goods. Exploration of career opportunities.

216 TEXTILES (2 + 2) 3 credits
Consumer orientation to textiles. Serviceability, concepts of durability, care, comfort, and aesthetic appearance are used to evaluate textile alternatives for various end uses.

270 FIELD EXPERIENCE 1 to 3 credits *S/U only*
Coordinated work experience in the apparel/retail industry under direction of a faculty adviser. Prerequisite: TAM 210, 212, 216.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

310 FASHION THEORY (1 + 0) 1 credit
Fashion theories, cycles, and influences. Prerequisite: SOC 101; PSY 101.

311 CLOTHING AS NON-VERBAL COMMUNICATION (1 + 0) 1 credit
Impact of clothing and appearance on social interaction. Prerequisite: SOC 101; PSY 101.

312 CLOTHING AESTHETICS (1 + 0) 1 credit
Application of elements and principles of design to clothing. Prerequisite: SOC 101; PSY 101.

315 HISTORIC COSTUMES AND TEXTILES (3 + 0) 3 credits
Textile fabrics and dress as they record the cultural, social and economic trends of significant design periods.

318 CREATIVE TEXTILES (2 + 2) 3 credits
Design of textiles structures using fibers, yarns and fabrics. Historical and traditional aspects studied in relation to potential in design of contemporary fabric forms. Prerequisite: TAM 151.

375 PERSPECTIVES ON THE FAMILY'S NEAR ENVIRONMENT (3 + 0) 3 credits
Exploration of the family and its near environment. Focus on the relationship of design, technology and environment to human behavior. Prerequisite: NUTR 121; SOC 101; PSY 101.

400, 600 SPECIAL PROBLEMS 1 to 10 credits
Individual study or research in fields of special interest. Maximum of 10 credits.

414 APPAREL RETAIL MANAGEMENT (3 + 0) 3 credits
Case study approach to managerial and marketing responsibilities in planning, purchasing, and controlling operations with emphasis on apparel retail environments. Prerequisite: TAM 212; MGRS 310, 312.

416, 616 ADVANCED TEXTILES (3 + 0) 3 credits
Advanced study of fabric performance and selection of textiles for specific end uses. Introduction to laboratory testing of fabrics. Prerequisite: TAM 216.

419, 619 CULTURAL, SOCIAL, AND PSYCHOLOGICAL ASPECTS OF DRESS (3 + 0) 3 credits
Exploration of dress as a communicator of the social, psychological and cultural aspects of society. Prerequisite: 6 credits of social science or human development.

470 PREPROFESSIONAL INTERNSHIP 3 credits *S/U only*
Managerial work experience in apparel or retail industry under the direction of a faculty adviser. Prerequisite: TAM 270, 414.

THEATRE (THTR)

100 INTRODUCTION TO THE THEATRE (3 + 0) 3 credits
Survey of the art and craft of the theatre including representative plays.

118 ORIENTATION TO PERFORMING THEATRE (3 + 0) 3 credits
Lecture, discussion, and performance encompassing the philosophy and techniques of interpretation, acting and directing. May not be taken for audit.

119 ORIENTATION TO TECHNICAL THEATRE (3 + 0) 3 credits
Lecture and discussion encompassing the philosophy and techniques of technical theatre.

121 STAGE MAKEUP (2 + 2) 3 credits
Specialized instruction in the theory and experience in the application of stage makeup as related to the visual impact of an actor on stage.

203, 403 NEVADA REPERTORY COMPANY 3 credits each *S/U only*
Performance and production of plays for the University Theatre season. Includes instruction and research relative to the selected program of plays. Since company assignments are announced after registration the student may enroll in the semester following participation. Maximum of 9 credits each. May not be taken for audit.

219-220 PROJECTS IN TECHNICAL THEATRE (3 + 0) 3 credits each
Specialized instruction in the theory and practice of such areas as scenery, lighting, sound properties and costuming. Prerequisite: THTR 119.

221 INTERPRETATION (3 + 0) 3 credits
Oral interpretation of the forms of literature. Lectures and performance.

230 DESIGN AESTHETICS AND DRAFTING FOR THE THEATRE (3 + 0) 3 credits
Fundamentals of visual composition, design theory and drafting techniques for the stage.

240 INTRODUCTION TO COSTUMING (3 + 0) 3 credits
Practical applications of construction and planning techniques involved in costuming a theatre production.

250-251, 350-351 LABORATORY THEATRE: ACTING (2 + 3) 3 credits each
Lectures and discussion providing fundamentals for laboratory workshops. Prerequisite: THTR 118. May not be taken for audit.

260 THEATRE SPEECH (3 + 0) 3 credits
Practice in using the actor's voice.

321 ADVANCED INTERPRETATION (3 + 0) 3 credits
Advanced techniques of oral expression. Prerequisite: THTR 221.

330 STAGE LIGHTING (3 + 0) 3 credits
Theory and practice of lighting design and control. Prerequisite: THTR 230.

339 LIGHTING PRACTICUM (0 + 3 per credit) 1 to 3 credits
Practical experience as lighting designer in a production situation; creating the design, coordinating its execution and creating light cues. Maximum of 6 credits.

340 STAGE COSTUMING (3 + 0) 3 credits
Theory and practice of drafting historic and modern costumes for the stage.

349 COSTUMING PRACTICUM (0 + 3 per credit) 1 to 3 credits
Specialized study related to construction of garments, building of accessories, shop management and/or maintenance of wardrobe in theory and practice. Maximum of 6 credits.

360 EXPERIMENTAL THEATRE (3 + 0) 3 credits
Concentrates on specific areas of contemporary theatre practice, such as mime, improvisations, mixed media, musical theatre, etc. Specific content announced in advance. Maximum of 6 credits.

370 TOURING THEATRE 1 to 3 credits *S/U only*
Intensive road experience in planning for and rehearsing, setting up, performing and striking productions in various locations and for a variety of audiences. Maximum of 6 credits.

409 SCENERY PRACTICUM (0 + 3 per credit) 1 to 3 credits
Practical experience as scene designer or technical director in an actual production situation. Maximum of 6 credits.

419, 619 SCENIC DESIGN (3 + 0) 3 credits
Art of scenic interpretation through play analysis; rendering, color, style, ground plans, construction plans; research in history of design and period styles. Prerequisite: THTR 230.

421, 621 READERS THEATRE (3 + 0) 3 credits
Preparation and performance of literary selections for a theatrical environment.

431-432, 631-632 CHILDREN'S THEATRE (2 + 3) 3 credits
Laboratory and conference course offering practical experience in a children's theatre.

440 COSTUME DESIGN AND RENDERING (3 + 0) 3 credits
Art and theory of costume interpretation through play analysis, research in history of design and period style and rendering.

450, 650 THEORIES AND STYLES OF ACTING (3 + 0) 3 credits
Practice in period acting styles. Prerequisite: THTR 118. May not be taken for audit.

452-453, 652-653 LABORATORY THEATRE: PLAYWRITING (2 + 3) 3 credits each
Lectures and discussion to provide fundamentals for laboratory workshop.

454-455, 654-655 LABORATORY THEATRE: DIRECTING (2 + 3) 3 credits each
Lectures and discussion providing fundamentals for laboratory workshops. Prerequisite: 2 semesters of Laboratory Theatre: Acting. May not be taken for audit.

471, 671 HISTORY OF THEATRE I (3 + 0) 3 credits
Development of theatrical art from its beginning to 1642.

472, 672 HISTORY OF THEATRE II (3 + 0) 3 credits
Development of theatrical art from 1642 to present.

473, 673 SEMINAR IN THEATRICAL PERIODS (3 + 0) 3 credits
Intensive study into a specific historical period or significant movement, subject to be listed in class schedule. Maximum of 6 credits.

474, 674 THEATRE FIELD STUDY 1 to 3 credits
Student-faculty seminar including group travel to theatre centers within the U.S. and abroad for field study experience. Maximum of 6 credits.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in theatre. Maximum of 8 credits.

Inactive Courses

700 RESEARCH METHODS (3 + 0) 3 credits
719 SEMINAR: TECHNICAL THEATRE (3 + 0) 3 credits
721 SEMINAR: ORAL INTERPRETATION (3 + 0) 3 credits
729 THEATRE CRITICISM AND AESTHETICS (3 + 0) 3 credits
792 SPECIAL PROJECTS IN THEATRE (3 + 0) 3 credits

VETERINARY MEDICINE (V M)

100 VETERINARY MEDICINE (1 + 0) 1 credit
An orientation course limited to students intending to pursue veterinary medicine as a career.

413, 613 ANATOMY OF LARGE ANIMALS (2 + 6) 4 credits
Comparative study of the anatomy of the skeletal, articular, muscular, digestive, urinary, reproductive, endocrine, nervous, circulatoty, integumentary, and sensory systems of domestic animals. Prerequisite: BIOL 201.

485 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Review of recent research, innovations and development in the area of animal health and disease control. Maximum of 6 credits.

793 INDEPENDENT STUDY 1 to 6 credits
Intensive study of a special problem in molecular biology as it relates to veterinary medicine or related disciplines.

WESTERN TRADITION (W T)

201 FOUNDATIONS OF WESTERN CULTURE (3 + 0) 3 credits
Introduction to Greek, Roman and Judeo-Christian traditions through the Middle Ages. Prerequisite: ENGL 102.

202 THE MODERN WORLD (3 + 0) 3 credits
Intellectual, literary and political history of Europe from Renaissance to present. Prerequisite: W T 201.

203 THE AMERICAN EXPERIENCE AND CONSTITUTIONAL CHANGE (3 + 0) 3 credits
Emphasizes the origins of the U.S. and Nevada Constitutions and issues such as equality and civil rights; individualism and civil liberties; federalism; environmentalism; urbanization and industrialization; and religious and cultural diversity. Prerequisite: W T 201. Satisfies the U.S. and Nevada constitution requirements.

WOMEN'S STUDIES (W S)

101 INTRODUCTION TO WOMEN'S STUDIES (3 + 0) 3 credits
Interdisciplinary introduction to the methods and concerns of Women's Studies drawing from history, psychology, sociology, law, and language concerns.

297 SPECIAL TOPICS 1 to 3 credits
Topics of current interest not incorporated in regular offerings. Maximum of 4 credits.

490 INDEPENDENT STUDY 1 to 3 credits
Supervised reading and research open to women's studies minors. Prerequisite: W S 101. Maximum of 6 credits.

497 SPECIAL TOPICS 1 to 3 credits
Topics of current interest not incorporated in regular offerings. Maximum of 4 credits.

University Service Awards

Distinguished Teacher Award

1989 James C. McCormick, Professor of Art
1988 Christopher H. Exline, Professor of Geography
David W. Hettich, Associate Professor of English
1987 Dana J. Davis, Professor of Curriculum and Instruction
1986 David Ehrke, Associate Professor of Music
1985 Edward A. Zane, Professor of Accounting and Information Systems
1984 B.J. Fuller, Associate Professor of Accounting and Information Systems
1983 Donald C. Pfaff, Associate Professor of Mathematics
1982 Donald W. Winne, Assistant Professor of Managerial Sciences
1981 Kenneth C. Kemp, Professor of Chemistry
1980 Fred A. Ryser, Jr., Professor of Biology
1979 Richard A. Curry, Associate Professor of Foreign Languages and Literatures
1978 Larry J. Larsen, Professor of Economics
1977 Alan A. Gubanich, Assistant Professor of Biology
1976 Elwood L. Miller, Associate Professor of Forestry and Recreation
1975 Rosella Linskie, Professor of Curriculum and Instruction
1974 Richard D. Burkhart, Professor of Chemistry
1973 F. Donald Tibbitts, Professor of Biology

Outstanding Researcher Award

1989 David P. Westfall, Professor of Pharmacology
1988 Thomas J. Nickles, Professor of Philosophy
1987 Paul W. McReynolds, Professor of Psychology
1986 Bruce E. Blackadar, Professor of Mathematics
1985 Bruce M. Douglas, Professor of Civil Engineering
1984 Gary J. Blomquist, Associate Professor of Biochemistry
1983 William H. Jacobsen, Jr., Professor of English
1982 No award was given
1981 Alan S. Ryall, Professor of Geology and Geography
1980 Lawrence T. Scott, Associate Professor of Chemistry
1979 Baldev K. Vig, Professor of Biology
1978 David A. Lightner, Professor of Chemistry
1977 Thomas F. Cargill, Associate Professor of Economics
1976 Beatrice Gardner, Professor of Psychology
R.A. Gardner, Professor of Psychology
1975 Hyung K. Shin, Professor of Chemistry

UNR Foundation Professorships

1989 Morris R. Brownell, Professor of English
John H. Peacock, Professor of Physiology
James T. Richardson, Professor of Sociology
1988 Don D. Fowler, Professor of Historic Preservation and Anthropology
R.A. Gardner, Professor of Psychology
Ross W. Smith, Professor of Chemical and Metallurgical Engineering
1987 David A. Lightner, Professor of Chemistry and Biochemistry
W. Shane Templeton, Professor of Curriculum and Instruction
David P. Westfall, Professor of Pharmacology
1986 Thomas F. Cargill, Professor of Economics
Thomas J. Nickles, Professor of Philosophy
Baldev K. Vig, Professor of Biology
1985 Gary J. Blomquist, Professor of Biochemistry
Beatrice T. Gardner, Professor of Psychology
Lawrence T. Scott, Professor of Chemistry
1984 Hyung K. Shin, Professor of Chemistry
Thomas R. Kozel, Professor of Microbiology
Bruce M. Douglas, Professor of Civil Engineering

Classified Employee of the Year

1989 Nadine Santina, Admissions and Records Specialist, Student Services
1988 Charles "Red" Schultz, Assistant Superintendent of Buildings and Grounds
1987 Cheryl Hinman, Management Assistant II, Biochemistry
1986 Mena Porta, Coordinator, Advisement Center, Student Services

University Faculty

The date following each description designates the time of original appointment to the faculty of the university. (Dates of resignations and reappointments are not indicated.) A second date indicates the beginning of service in present rank when this differs from the date of original appointment.

Chancellor, University of Nevada System

Mark H. Dawson, M.H.E.A.
B.A., University of Utah, Salt Lake City, 1963; M.H.E.A., Weber College, 1961. (1965-1987)

President, Reno Campus

Joseph N. Crowley, Ph.D.
B.A., University of Iowa, 1959; M.A., Fresno State College, 1963; Ph.D., University of Washington, 1967. (1966-1979)

Active

Deborah Achtenberg, Ph.D.,Assistant Professor of Philosophy.
B.A., St. John's College, 1973; M.A., New School for Social Research, 1977; Ph.D., 1982. (1982)

Gary E. Adams, Ph.D., Clinical Associate Professor of Internal Medicine.
B.A., California State University, Long Beach, 1968; M.A., 1970; Ph.D., Southern Illinois University, 1973. (1980)

William P. Adamski, M.A., Clinical Instructor, Psychiatry and Behavioral Sciences.
A.A., Wayne Community College, Detroit, 1974; M.A., Merrill-Palmer Institute of Human Development, Detroit, 1979. (1987)

Rod L. Aeschlimann, M.Ed., Director, Residential Life/Housing.
A.A., Northeastern Junior College, 1971; B.A., University of Northern Colorado, 1973; M.Ed., Colorado State University, 1979. (1989)

Rodger Agre, M.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
B.S., Dartmouth College, New Hampshire, 1959; M.D., Jefferson Medical College, Philadelphia, 1963. (1989)

ernando J. Aguirre,* Ph.D., Associate Professor of Chemical Engineering.
B.S., Universidad Santa Maria, Chile, 1977; M.S., 1978; M.S.CH.E., University of Pittsburgh, 1980; Ph.D., 1982. (1986)

obert H. Ahlstrom, M.S., Clinical Assistant Professor of Orthodontia.
B.S., Arizona State University, 1972; D.D.S., University of the Pacific, 1975; M.S., University of North Carolina, 1977. (1984)

ang Sun Ahn, M.D., Clinical Assistant Professor, Pediatrics.
M.D., Yousei University, College of Medicine, Korea, 1972. (1987)

ic Albers, Ph.D., Associate Professor of Social Work.
B.A., University of Nebraska, 1972; M.S.W., Our Lady of the Lake College, 1976; Ph.D., Texas Women's University, 1981. (1989)

uncan M. Aldrich, M.L.S., Assistant Government Publications Librarian.
B.A., Ohio University, Athens, 1974; M.A., University of Oklahoma, 1977; M.L.S., 1985. (1986)

dith Allanson, M.D., Clinical Assistant Professor of Obstetrics and Gynecology. (1984)

eather Allen, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., Stanford University, 1972; M.D., University of California, San Diego, 1976. (1986)

anton H. Allen, M.D., Clinical Assisant Professor, Obstetrics and Gynecology.
B.S., University of California, Davis, 1975; M.D., University of Nevada School of Medicine, Reno, 1980. (1987)

llen J. Allie, M.D., Clinical Assistant Professor of Surgery.
A.B., Hanover, College, 1954; M.D., Wayne State University College of Medicine, 1961. (1989)

erek Allister, Assistant Basketball Coach, Intercollegiate Athletics. (1987)

illip L. Altick,* Ph.D., Professor of Physics.
B.S., Stanford University, 1955; M.A., University of California, Berkeley, 1960; Ph.D., 1963. (1963-1975)

ohn C. Altrocchi,* Ph.D., Professor of Psychiatry and Behavioral Sciences.
A.B., Harvard University, 1950; Ph.D., University of California, Berkeley, 1957. (1970)

Lenore A. Amante, M.D., Clinical Assistant Professor, Radiology.
B.A., Rice University, Houston, 1971; M.D., University of Texas Medical Branch, Galveston, 1975. (1987)

Loretta A. Amaral, M.L.S., Librarian.
B.A., University of California, Berkeley, 1952; M.L.S., 1963. (1972-1978)

Henry N. Amato, Ph.D., Dean of Business Administration; Professor of Managerial Science.
B.S., Southeast Louisiana University, 1962; M.S., University of Southern Louisiana, 1964; Ph.D., Tulane University, 1972. (1985)

John A. Ameriks, M.D., Clinical Associate Professor of Surgery.
B.S., Wayne State University, 1965; M.D., University of Michigan, 1969. (1988)

Stanley Ames, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
B.A., New York University, 1956; M.D., Yeshiva University, 1960. (1978)

Fred M. Anderson, M.D., Clinical Professor of Surgery.
B.S., University of Nevada, Reno, 1928; B.A., Oxford University, 1932; M.D., Harvard Medical School, 1934. (1980)

Grant P. Anderson, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of New Mexico, 1974. (1979)

Jamie T. Anderson, M.A., Curriculum Specialist, School of Medicine.
B.S., St. Louis University, 1972; M.A., San Jose State University, 1978. (1988)

John G. Anderson,* Ph.D., Associate Professor of Seismology.
B.S., Michigan State University, 1970; Ph.D., Columbia University, 1976. (1988)

Martin Roy Anderson, M.A., Assistant Director, Residential Life and Housing.
B.S., Michigan State University, 1975; M.A., Central Michigan University, 1978. (1986)

Michael Anderson, B.S., Head Swimming Coach.
B.S., Willamette University, 1979. (1989)

Patricia S. Andrew, M.S., Director, Continuing Education Operations
B.A., Phillips University, 1964; M.S., University of Missouri, 1969. (1983)

John D. Andrews, Jr., M.D., Clinical Assistant Professor of Internal Medicine.
B.A., Stanford University, 1971; M.D., University of Southern California, 1975. (1982).

Allen R. Anes, M.D., Clinical Assistant Professor of Pathology.
B.A., Brooklyn College, 1965; M.D., Wayne State University, 1971. (1977)

Sohail Anjum, M.D., Clinical Assistant Professor.
M.D., Nishtar Medical College, Pakistan, 1963. (1983)

Mary B. Ansari, M.B.A., Head of Administrative Services, Branch Libraries
A.B., University of Illinois, 1961; M.L.S., 1963; M.B.A., Western Michigan University, 1967. (1969-1983)

Nazir Ahmad Ansari,* Ph.D., Professor of Managerial Sciences.
B. Com., Banaras Hindu University, India, 1955; M.Com., 1957; Ph.D., University of Illinois, 1964. (1967-1973)

Constance V. Antone-Knoll, M.D., Clinical Associate Professor.
B.S., University of Nevada, Reno, 1971; M.D., University of Colorado, 1976. (1980)

David O. Antonuccio, Ph.D., Associate Professor of Psychiatry and Behavioral Sciences.
Ph.D., University of Oregon, 1980. (1985-1987)

Jeffery A. Applebaum, Clinical Assistant Professor of Family and Community Medicine
B.S., University of Washington-Seattle, 1966; M.D., 1970. (1988)

Karen Arcotta, M.D., Clinical Assistant Professor.
B.S., University of Southern California, 1974; M.D., University of Nevada, Reno, 1980. (1984)

Jeffrey Ardito, B.S., Assistant to Wolf Club Director, Intercollegiate Athletics.
B.S., University of Nevada, Reno, 1984. (1986)

Kosta M. Arger, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Washington Medical School, 1979. (1985)

Rena Mae Armstrong, M.S., Internship Coordinator/Instructor, College of Agriculture.
B.S., California Polytechnic State University, 1977; M.S., University of Nevada, Reno, 1979. (1979)

Henry C. Artman, M.D., Assistant Professor in Pediatrics.
B.A., University of Wisconsin, 1969; M.D., New York University, 1973. (1983)

R. Shah Arvindkumar, M.D., Professor of Internal Medicine
M.B.B.S., Gujarat University, India, 1957; M.D., 1961. (1988)

Thomas E. Ary, Ph.D., Research Assistant Professor in Physiology.
B.S., Washington State University, 1973; Ph.D., 1981. (1983)

Paula S. Askew, M.S., Transfer Counselor, Student Services.
B.S., University of Nevada, Reno, 1981; M.S., University of Nevada, Las Vegas, 1987. (1989)

Merle F. Askren, Ph.D., Clinical Assistant Professor of Psychology.
B.A., University of San Francisco, 1975; Ph.D., University of Nevada, Reno, 1979. (1980)

*Graduate faculty.

Glendel W. Atkinson,* Ph.D., Professor of Economics.
A.B., Humboldt State College, 1963; M.A., University of Oklahoma, 1966; Ph.D., 1968. (1967-1977)

Erin Francis Audrain, Jr., B.S., Professor of Military Science.
B.S., U.S. Military Academy, West Point, 1968. (1984)

Gorka Aulestia, M.A., Lexicographer/Instructor.
Ordination Seminarios of San Sebastian, 1958; Graduado, Universidad de Deusto, 1966; Certificat Pratique Ier, Universite de Paris, 1971; M.A., University of Nevada, Reno, 1978; M.A., 1979. (1980)

Christopher T. Ault, M.A., Athletic Director, Head Football Coach, Intercollegiate Athletics.
B.S., University of Nevada, Reno, 1969; M.A., 1972. (1976-1986)

M. Ronald Avery, M.D., Clinical Assistant Professor.
B.S., Arkansas A & M College, 1958; M.D., University of Arkansas School of Medicine, 1962. (1975)

William H. Aymard, Research Associate, Geological Sciences. (1987)

Carl W. Backman,* Ph.D., Professor of Sociology.
A.B., Oberlin College, 1948; A.M., Indiana University, 1950; Ph.D., 1954. (1955-1966)

Todd E. Baddley, Assistant Baseball Coach, Intercollegiate Athletics. (1988)

Sitadri N. Bagchi, Ph.D., Assistant Professor of Mathematics.
B.S., India Statistical Institute, 1975; Ph.D., Ohio State University, 1983. (1986)

Rex T. Baggett, M.D., Clinical Professor.
B.S., University of Oklahoma, 1958; M.D., 1962. (1971)

Frank G. Baglin,* Ph.D., Professor of Chemistry.
B.S., Michigan State University, 1963; Ph.D., Washington State University, 1967. (1968-1984)

Kenneth T. Bahm, M.A., Lecturer/Director of Forensics.
B.A., Western Washington University, 1984; M.A., 1986. (1989)

Curtiss M. Bailey,* Ph.D., Professor of Animal Science.
B.S., University of Wisconsin, 1952; M.S., A & M College of Texas, 1954; Ph.D., University of Wisconsin, 1960. (1960-1971)

Ronald G. Bailey, Ed.D., Assistant Professor of Recreation, Physical Education, and Dance.
B.A., Colorado State College, 1963; M.A., Sacramento State College, 1972; Ed.D., University of Utah, 1988. (1970-1979)

Ellen J. Baker, Ph.D., Assistant Professor of Biology.
B.A., Hunter College, 1975; Ph.D., Wesleyan University, 1982. (1987)

Jane Baker, M.U.N., Clinical Instructor of Nursing.
B.S.N., University of Nevada, Reno, 1981; M.U.N., San Jose State University, 1983 (1986)

Susan C. Baker,* Ph.D., Associate Professor of English.
B.A., Rice University, 1967; M.A., University of Texas at Austin, 1971; Ph.D., 1975. (1975-1981)

Cynthia L. Baldwin,* Assistant Professor of Counseling and Educational Psychology.
B.S., University of Minnesota, 1971; M.S., University of Iowa, 1981; Ph.D., 1984. (1988)

Deborah Ballard-Reisch,* Ph.D., Assistant Professor of Speech and Theatre.
B.A., Bowling Green State University, 1979; M.A., Ohio State University, 1980; Ph.D., Bowling Green State University, 1983. (1985)

Jerry L. Ballew, M.S., Lecturer, Recreation, Physical Education, and Dance.
B.S., University of Utah, 1965; M.S., University of Nevada, Reno, 1976. (1977-1978)

John F. Balliette, Jr., M.S., Extension Agent In Charge, College of Agriculture.
B.S., University of Nevada, Reno, 1981; M.S., New Mexico State University, 1984. (1985)

Mary Jo Balvin, R.N., Clinical Instructor of Family Medicine.
R.N., University of Nebraska College of Nursing, 1973. (1989)

Paul D. Bandt, M.D., Clinical Assistant Professor of Surgery/Radiology.
B.S. in Ed., University of Minnesota, 1960; M.D., 1966. (1983)

Terence G. Banich, M.D., Clinical Instructor.
B.S., Loyola University, 1968; M.D., 1972; M.S., University of Illinois, 1975. (1981)

Robert B. Bannister, D.O., Clinical Assistant Professor of Family and Community Medicine. (1986)

Jerry Barbee, Ph.D., Adjunct Assistant Professor of Agricultural Education and Communications. (1986)

David A. Barber, M.Ed., Extension Information Specialist, Cooperative Extension Service.
B.S., Oregon State University, 1963; M.Ed., University of Nevada, Reno, 1973. (1970-1975)

Thomas C. Barcia, Assistant Professor of Radiology and Director of Radiology Program. (1983)

Anna P. Barg, M.D., Clinical Assistant Professor.
M.D., Ohio State University, 1971. (1982)

Richard A. Bargen, M.D., Clinical Assistant Professor. (1983)

Marvin P. Barken, M.D. Clinical Assistant Professor of Family and Community Medicine.
B.A., Western Reserve University, 1956; M.D., University of Guadalajara, 1971. (1988)

J. Patrick Barker, Ph.D., Assistant Professor of Psychiatry and Behavioral Sciences.
Ph.D., University of California Riverside, 1982.

Newell F. Barlow, M.S., Coordinator, Job Location and Development, Student Financial Services.
B.S., Idaho State College, 1954; M.S., University of Idaho, 1956. (1982)

Emily Barnes, P.N.P., Clinical Instructor of Pediatrics.
B.S.N., Orvis School of Nursing, 1979; P.N.P., University of Colorado Health Sciences Center, 1982. (1989)

Mauvine R. Barnes, M.D., Clinical Assistant Professor.
B.S., Ursinus College, 1946; M.D., Woman's Medical College, 1957. (1971)

Robert C. Barnes, M.B.A., Assistant Dean of Business
B.A., University of Virginia, 1961; M.S., 1963; M.B.A., 1970. (1982)

Robert Barnet, M.D., Clinical Professor.
M.D., Loyola University, 1954. (1980)

Diane Barone, Adjunct Faculty in Curriculum and Instruction. (1986)

Joseph A. Bartek, Ed.D., Continuing Education Specialist.
B.S., University of San Francisco, 1967; M.B.A., Gonzaga University, 1976; Ed.D., University of San Francisco, 1985. (1988)

Robert D. Basta, M.D., Associate Professor of Family and Community Medicine.
B.S., University of Nevada, Reno, 1967; M.D., University of Oregon, 1971. (1982)

Jane Stroup Bauman, M.A., Instructor, Intensive English Language Center.
B.A., University of California, Santa Cruz, 1977; M.A., Georgetown University, 1983. (1987)

Renato G. Bautista,* Ph.D., Professor of Extractive Met.
B.S., University of Santo Tomas, 1955; M.S., Massachusetts Institute of Technology, 1957; Ph.D., University of Wisconsin, 1961. (1984)

Kenneth H. Bazzell, M.A., Assistant Professor of Sociology.
B.S., University of Wisconsin-Madison, 1953; M.A., California State University, Los Angeles, 1961. (1987)

Gary Allan Beale, Ph.D., Assistant Professor of Academic Counseling.
A.B., Western Reserve University, 1967; M.A., Case Western University, 1970; Ph.D., University of Michigan, Ann Arbor, 1972. (1986)

Royce S. Beals, Director of Fire Protection Training Academy. (1980-1989)

Donald R. Bear,* Ph.D., Associate Professor of Curriculum and Instruction.
B.A., George Washington University, 1974; M.Ed., University of Virginia, 1977; Ph.D., 1982. (1986)

Lorena Beck, M.A., Academic Coordinator for Intercollegiate Athletics.
B.A., University of Kansas, 1973; M.A., University of Nevada, Reno, 1986. (1987)

Thomas A. Beck, III, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., University of Nebraska, 1961. (1985)

Nicholas E. Bednarski, M.D., Assistant Professor of Internal Medicine.
M.D., University of Texas Medical School at Galveston, 1975. (1984)

Rafik I. Beekun, Ph.D., Assistant Professor of Managerial Sciences.
B.A., Columbia College, 1978; M.B.A., University of Texas, 1983; Ph.D., 1988. (1989)

John H. Bell, M.D., Assistant Professor of Surgery.
B.S., Ohio State University, 1971; M.D., 1975. (1986-1988)

John W. Bell, M.S., Engineering Geologist, Nevada Bureau of Mines and Geology.
A.B., Augustana College, 1968; M.S., Arizona State University, 1974. (1976-1988)

Robert R. Belliveau, M.D., Clinical Associate Professor of Obstetrics and Gynecology and Clinical Assistant Professor of Pathology and Laboratory Medicine.
B.A., Clark University, 1953; M.D., Washington University, 1957. (1984)

Darrell D. Bennett, M.D., Clinical Assistant Professor.
B.S., University of Nevada, 1962; M.D., University of Utah, 1967. (1975-1977)

Alison C. Benson, M.A., Director of Student Financial Services.
B.A., University of Nevada, Reno, 1975; M.A., 1981. (1979-1982)

Donna G. Bentley, M.L.S., Librarian.
B.A., University of California at Riverside, 1979; M.L.S., University of California at Los Angeles, 1981. (1988)

William Bentley, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., Cornell University Medical College, 1948. (1985)

Berch Berberoglu,* Ph.D., Professor of Sociology.
B.S., Central Michigan University, 1972; M.A., 1974; Ph.D., University of Oregon, 1977. (1977-1988)

Joseph S. Beres, M.D., Director, Student Health Service.
M.D., Indiana University, 1960. (1979)

Emanuel Berger, M.D., Clinical Assistant Professor of Pediatrics. (1986)

Joel Berger,* Ph.D., Professor of Range, Wildlife and Forestry.
B.A., California State University, Northridge, 1974; M.S., 1975; Ph.D., University of Colorado, Boulder, 1978. (1985-1989)

*Graduate faculty.

Michael L. Berman, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., George Washington University, 1967. (1985)

James A. Bernardi,* Ph.D., Professor of Speech and Theatre.
B.A., University of Nevada, Reno, 1964; M.A., University of Oregon, 1966; Ph.D., University of Denver, 1976. (1972-1985)

Theodore E. Berndt, M.D., Clinical Assistant Professor.
B.S., University of Wisconsin-Madison, 1963; M.D., 1966. (1977)

LeRoy Bernstein, M.D., Clinical Assistant Professor, Pediatrics.
B.A., University of Colorado, Boulder, 1959; M.D., George Washington University, Washington, D.C., 1968. (1987)

Marvin J. Bernstein, M.D., Assistant Professor of Internal Medicine.
B.S., Illinois Institute of Technology, 1960; M.D., University of Chicago, 1964. (1982)

David P. Berry, M.D., Clinical Assistant Professor of Surgery.
M.D., Tulane Medical School, 1975. (1985)

Robert Berry, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Southern California, 1978. (1985)

Arthur S. Besser, M.D., Clinical Associate Professor of Surgery.
B.S., Ohio State University, 1957; M.D., Jefferson Medical College, 1961. (1988)

Jerald W. Best, B.S., Manager, Grants and Contracts.
B.S., University of Wyoming, 1971; B.S., 1972. (1984)

Alan Bible, LL.D., Adjunct Professor.
B.A., University of Nevada, 1930; LL.B., Georgetown University, 1934; LL.D., Rider College; LL.D., Georgetown Law School, 1970. (1977)

G. Kim Bigley, M.D., Clinical Associate Professor of Internal Medicine.
B.A., University of California at San Diego, 1973; M.D., University of Chicago, 1977. (1981)

Ruth E. Billings, Ph.D., Research Associate Professor of Surgery.
A.B., Indiana University, 1965; Ph.D., 1976. (1989)

John W. Bird,* Ph.D., P.E., Professor of Civil Engineering.
B.C.E., University of Minnesota, 1956; M.S.C.E., 1964; Ph.D., University of Nevada, Reno, 1970. (1964-1981)

Gary R. Bishop, B.A., Facilities Services Coordinator.
B.A., Columbia College, 1985. (1987)

Richard E. Bitterman, M.Ed., Area Extension Chairman, Cooperative Extension Service.
B.S., Cornell University, 1955; M.Ed., University of Maryland, 1964. (1976-1981)

Richard A. Bjur,* Ph.D., Associate Professor of Pharmacology.
B.A., Lewis and Clark College, 1963; Ph.D., University of Colorado, 1973. (1975-1989)

Franklin R. Black, M.D., Clinical Associate Professor.
A.B., Albion College, 1938; M.D., University of Michigan Medical School, 1941. (1971)

Bruce E. Blackadar,* Ph.D., Professor of Mathematics.
A.B., Princeton University, 1970; M.A., University of California, Berkeley, 1974; Ph.D., 1975. (1975-1983)

Andrew C. Blanar, L.L.M., Assistant Professor of Criminal Justice.
M.A., University of Pittsburgh, 1973; J.D., 1975; L.L.M., Cambridge University, 1986. (1989)

Lucius Blanchard, M.D., Assistant Professor of Internal Medicine.
A.B., University of North Carolina, 1964; M.D., 1968. (1982)

Robert E. Blatz, Jr.,* J.D., Associate Professor of Accounting and Computer Information Systems.
B.A., University of Detroit, 1970; M.B.A., University of Cincinatti, 1980; M.S., 1981; J.D., University of Detroit, 1973. (1984)

Robert E. Blesse, M.L.S., Special Collections Librarian.
B.A., California State University, Chico, 1970; M.A., 1972; M.L.S., University of California Los Angeles, 1975. (1981)

Mary J. Blomquist,* Ph.D., Professor and Research Grant Coordinator of Biochemistry.
B.S., Wisconsin State University-La Crosse, 1969; Ph.D., Montana State University, 1973. (1977-1983)

Stephen H. Bloomfield, M.D., Clinical Assistant Professor.
B.S., University of Florida, 1968; M.D., 1972. (1984)

Robert E. Bluemer, Military Science. (1987)

Gerald Aaron Blum,* Ph.D., Associate Professor of Managerial Sciences.
B.A., California State University, Northridge, 1977; Ph.D., Purdue University, 1982. (1984)

Kathleen A. Boardman, Lecturer in English.
A.B., University of Nebraska, 1969; M.A., University of Washington, 1970. (1979)

Phillip C. Boardman,* Ph.D., Associate Professor of English.
A.B., University of Nebraska, 1967; M.A., 1969; Ph.D., University of Washington, 1973. (1974-1979)

Thomas L. Bodensteiner, M.D., Clinical Assistant Professor.
B.S., Creighton University, 1957; M.A., State University of Iowa, 1960; M.D., Creighton University, 1967. (1976)

George T. Bohl, Ed.D., Senior Research Consultant, Project LEAD, Educational Leadership.
B.A. Colorado State College, 1957; M.Ed., University of Wyoming, 1963; Ed.D., 1974. (1987)

Owen C. Bolstad, M.D., Clinical Assistant Professor of Pathology.
B.S., University of Minnesota, 1947; M.B., 1951; M.D., 1952. (1989)

Keith G. Boman, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of California Los Angeles, 1967. (1985)

Richard A. Bomberger, M.D., Assistant Professor of Surgery.
B.A., Ohio Wesleyan University, 1970; M.D., University of Pennsylvania, 1973. (1981)

Harold F. Bonham, Jr., M.S., Mining Geologist, Nevada Bureau of Mines and Geology.
A.A., University of California, Berkeley, 1951; B.A., University of California, Los Angeles, 1954; M.S., University of Nevada, Reno, 1963. (1963-1974)

Mary A. Boni, M.P.H., Area Extension Agent, Nevada Cooperative Extension.
B.S., Iowa State University, 1977; M.P.H., Tulane University, 1981. (1985)

William S. Bossak, M.D., Clinical Assistant Professor.
B.S., University of Miami, 1970; M.D., 1974. (1980)

Marie I. Boutte, Ph.D., Assistant Professor of Anthropology.
M.A., University of California at Berkeley, 1983; Ph.D., 1987. (1988)

Michael J. Bowen, M.D., Clinical Assistant Professor.
B.S., University of New Mexico, 1966; M.D., 1977. (1982)

Roger T. Bowen, M.A., Head Track Coach.
M.A., Southeast Missouri University, 1974. (1989)

Joel F. Bower, M.D., Clinical Assistant Professor.
B.S., St. Francis College, 1958; M.D., University of Pittsburgh, 1962. (1978)

John A. Bowers, M.D., Clinical Associate Professor of Internal Medicine.
B.S., Indiana University-Bloomington, 1956; M.D., 1960. (1988)

Victor D. Bowers, M.D., Assistant Professor of Surgery.
B.S., University of South Florida, 1976; M.D., 1979. (1989)

Daniel C. Bowman, Ph.D., Assistant Professor of Plant Science.
B.A., University of Wisconsin, 1976; M.A., University of California at Davis, 1985; Ph.D., 1987. (1988)

Fredric M. Boyden, M.D., Clinical Professor.
B.A., Hastings College, 1957; M.D., University of Nebraska Medical Center, 1960. (1971-1979)

Harold L. Boyer, M.D., Assistant Professor of Internal Medicine.
B.S., University of Oklahoma, 1938; M.D., 1941. (1982)

Jerold E. Boyers, M.D., Clinical Assistant Professor of Surgery.
M.D., George Washington University School of Medicine, 1974. (1985)

Michael Bradeson, B.B.A., Assitant Football Coach, Intercollegiate Athletics.
B.B.A., Boise State University, 1981. (1986)

Richard Bradt,* Ph.D., Dean, School of Mines.
B.S., Massachusetts Institute of Technology, 1960; M.S., Rensselaer Polytechnic Institute, 1965; Ph.D., 1968. (1989)

Allen H. Brady, Ph.D., Professor of Mathematics and Computer Science.
B.S., University of Colorado, 1956; M.S., University of Wyoming, 1959; Ph.D., Oregon State University, 1965. (1979)

Thomas W. Brady, M.D., Clinical Associate Professor.
A.B., University of Kansas, 1959; M.D., 1963. (1971-1979)

Patricia Braly, M.D., Clinical Associate Professor of Obstetrics and Gynecology.
M.D., University of California Irvine, 1976. (1985)

Patrick J. Brandner, M.D., Clinical Assistant Professor.
B.S., Louisiana State University, 1969; M.D., Louisiana State University Medical Center, 1973. (1984)

Ken Braunstein, M.A., Associate Professor of Criminal Justice.
B.A., San Jose State College, 1965; M.A., Washington State University, 1966. (1968-1973)

Michael C. Braunstein, M.D., Clinical Assistant Professor.
A.B., Indiana University, 1968; M.S., 1971; M.D., 1973. (1984)

Timothy J. Bray, M.D., Clinical Assistant Professor of Surgery.
B.S., Arizona State University, 1970; M.D., University of California-Irvine, 1975. (1988)

Gunter G. Brettschnieder, Adjunct Professor of Basque Studies. (1983)

Michael J. Brodhead,* Ph.D., Professor of History.
B.A., University of Kansas, 1959; M.A., 1962; Ph.D., University of Minnesota, 1967. (1967-1979)

Joan Brookhyser, M.D., Clinical Associate Professor.
B.A., University of Oregon, 1973; M.D., University of Arizona, 1977. (1984-1988)

John W. Brophy, M.D., Clinical Professor.
B.S., University of North Dakota, 1948; M.D., Northwestern University, 1951. (1967-1979)

Willard S. Bross, M.D., Clinical Assistant Professor.
B.S., University of Washington, 1946; M.D., Creighton University, 1951. (1979)

Ann Janice Brothers, Ph.D., Visiting Assistant Professor of Biology and Veterinary Medicine.
Ph.D., Indiana University, 1979. (1986)

*Graduate faculty.

John W. Brouwers, M.D., Clinical Assistant Professor of Surgery.
B.S., Loyola University, 1975; M.S., California State University, 1977; M.D., University of Nevada, Reno, 1984. (1988)

Ellen H. Brow, M.A.L.S., Basque Studies Librarian.
B.A., University of California, Davis, 1958; M.A., University of Wisconsin, 1969; M.A.L.S., San Jose State University, 1966. (1989)

B. Norman Brown, M.D., Clinical Associate Professor of Surgery.
B.S., University of Iowa, 1967; M.D., Stanford University, 1972. (1988)

Byron Brown, M.D., Assistant Professor of Internal Medicine.
M.D., University of Washington School of Medicine, 1974. (1985)

Cynthia M. Brown, M.D., Assistant Professor of Family and Community Medicine.
B.S.N., University of California, Los Angeles, 1971; M.D., University of Nevada, Reno, 1983. (1986)

Dennis Brown, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., University of Nevada, Reno, 1973; M.D., University of Arizona Medical School, 1977. (1989)

Dennis G. Brown, Ph.D., Vice President Academic Affairs.
A.B., Cum Laude, Whitman College, 1965; Ph.D., University of Illinois, 1969. (1987)

Dennis J. Brown, M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1974; M.D., University of Arizona, 1977. (1981)

Richard A. Brown,* M.D., Assistant Professor of Internal Medicine.
B.S., University of Illinois, 1975; M.D., 1979. (1986)

Richard E. Brown,* Ph.D., Associate Professor of English.
A.B., Stanford University, 1968; M.A., Cornell University, 1971; Ph.D., 1972. (1972-1978)

Morris R. Brownell,* Ph.D., Professor of English.
A.B., Princeton University, 1955; M.A., University of California, Berkeley, 1962; Ph.D., 1966. (1976-1979)

Richard J. Browning, M.D., Clinical Associate Professor.
A.B., West Virginia University, 1952; B.S., 1954; M.D., Medical College of Virginia, 1956. (1975-1976)

Merle F. Bruce, M.D., Clinical Assistant Professor.
M.D., University of Oregon, 1966. (1980)

Reinhard F. Bruch, Ph.D., Associate Professor of Physics.
Ph.D., Free University of Berlin, 1976. (1984)

James Brune, Ph.D., Director of Seismological Laboratory and Professor of Geophysics.
B.S., University of Nevada, Reno, 1956; Ph.D., Columbia University, 1961. (1987)

Peter F. Brussard, Ph.D., Professor and Chairman of Biology.
A.B., Stanford University, 1960; M.S., University of Nevada, Reno, 1966; Ph.D., Stanford University, 1969. (1989)

John A. Bryant, M.D., Clinical Assistant Professor.
B.S., Drake University, 1959; M.D., University of Iowa, 1963. (1975)

Robert J. Bryg, M.D., Associate Professor of Internal Medicine.
B.S., Stanford University, 1976; M.S., 1977; M.D., University of Illinois, 1980. (1989)

Susan S. Buchwald, M.D., Clinical Professor.
M.D., University of Vermont, 1973. (1980)

Conor P. Buckley, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University College, Dublin, Ireland, 1967. (1981)

Robert Buckley, M.D., Clinical Associate Professor.
B.S., Loyola University, 1946; M.D., Georgetown University, 1950. (1980)

Elizabeth E. Budy, Ph.D., Adjunct Associate Professor of Anthropology. (1986)

Rose M. Bullis, M.A., Adjunct Instructor.
B.A., University of Nevada, Reno, 1930; M.A., 1955. (1976)

Arlene Bumbaca, M.D., Assistant Professor of Internal Medicine.
M.D., Medical College of Pennsylvania, 1979. (1984)

Donald L. Bunch, M.D., Clinical Assistant Professor.
B.A., Union College, 1960; M.D., Loma Linda University, 1964. (1982)

John G. Butch,* Ph.D., Professor of Accounting and Computer Informarion Systems.
B.S., Louisiana Polytechnic Institute, 1965; M.A., University of Alabama, 1967; Ph.D., 1968. (1986)

Jerold Wayne Burkhardt,* Ph.D., Associate Professor of Range, Wildlife and Forestry.
B.S., University of Idaho, 1964; M.S., 1967; Ph.D., 1969. (1976-1981)

Richard D. Burkhart,* Ph.D., Professor of Chemistry.
B.A., Dartmouth College, 1956; Ph.D., University of Colorado, 1960. (1965-1971)

Allan W. Busby, M.D., Assistant Professor of Internal Medicine.
B.S., University of Idaho, 1964; M.D., Washington University, 1969. (1982)

Nancy Busch, M.S., Adjunct Instructor of Nursing.
B.S., University of Nevada, Reno, 1966; M.S., 1976. (1977)

Jeanne M. Bush, B.S., Master Teacher, Child and Family Center.
B.S., Illinois State University, 1971. (1987)

Geraldine Buthod, M.S.N., Assistant Professor of Nursing.
M.S.N., University of California, Los Angeles, 1967. (1985)

Barbara Butler, M.L.S., Business Reference Librarian.
B.A., McGill University, Montreal, 1966; M.L.S., University of Hawaii, 1971. (1986)

Thorne J. Butler, M.D., Clinical Professor of Surgery, Clinical Assistant Professor of Obstetrics and Gynecology.
B.S., California Institute of Technology, 1951; M.D., Stanford University, 1955. (1975)

Julie Buttenweiser, M.S., Research Assistant, Research and Educational Planning Center.
A.B., Barnard College of Columbia University, 1988; M.S., Banks College of Education, 1989. (1989)

Iain Buxton, D.Ph.,* Associate Professor of Pharmacology.
B.A., University of California, San Diego, 1973; D.Ph., University of the Pacific, Stockton, 1978. (1985-1989)

Kurt A. Buzard, M.D., Clinical Assistant Professor of Surgery.
B.A., Northwestern University, Evanston, Illinois, 1975; M.A., Stanford University, Los Angeles, 1976; M.D., Northwestern University, Chicago, Illinois, 1980. (1987)

Jerry Cade, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of Texas at Austin, 1975; M.D., University of Texas Health Science Center at Dallas–Southwestern Medical School, 1980. (1989)

H. Treat Cafferata, M.D., Clinical Professor of Surgery.
M.D., University of Oregon, 1964. (1975)

Joseph T. Calabrese, M.A., Lecturer in English.
B.A., University of Nevada, Reno, 1978; M.A., 1981. (1982)

Martha Call, M.S.N., Instructor of Nursing.
M.S.N., Duke University, 1979. (1985)

John W. Callister, M.D., Clinical Associate Professor of Pathology and Laboratory Medicine. (1986)

Jerry C. Calvanese, M.D., Clinical Assistant Professor.
M.D., University of Colorado, 1975. (1979)

John A. Cameron, M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1968; M.D., University of New Mexico, 1972. (1979)

Kirk V. Cammack, M.D., Clinical Assistant Professor.
B.S., Denver University, 1949; M.D., University of Colorado Health Sciences Center, 1953. (1975-1977)

Michael E. Campana,* Associate Professor of Hydrogeology.
B.S., College of William and Mary, 1970; M.S., University of Arizona, 1973; Ph.D., 1975. (1976-1979)

R. Bruce D. Campbell, M.D., Clinical Assistant Professor, Internal Medicine.
B.A., Stanford University, Palo Alto, 1972; M.D., Albany Medical College, Albany, 1979. (1987)

Dennis G. Campton, M.D., Clinical Assistant Professor of Family Medicine.
B.S., Ohio State University, 1957; M.D., 1961. (1969)

Robert A. Cannon, M.D., Clinical Professor.
B.A., University of California Davis, 1963; M.D., University of California Los Angeles, 1971. (1982)

Albert H. Capanna, M.D., Clinical Instructor.
B.A., University of Texas, Austin, 1970; M.D., Wayne State University, 1974. (1984)

Carolyn L. Cardenas, M.F.A., Lecturer in Art.
B.A., University of Kansas, 1977; M.F.A., Drake University, 1979. (1986)

Joseph E. Cardillo, Ph.D., Clinical Assistant Professor.
B.A., Brown University, 1965; M.A., University of Rhode Island, 1968; Ph.D., University of Pennsylvania, 1975. (1978)

Maria J.P. Cardle, Ph.D., Clinical Assistant Professor of Pediatrics.
B.A., University of Notre Dame, 1981; Ph.D., University of Minnesota, 1986. (1989)

Thomas F. Cargill,* Ph.D., Professor of Economics.
B.S., University of San Francisco, 1964; M.A., University of California, Davis, 1965; Ph.D., 1968. (1973-1978)

Susan Carkeek, M.B.A., Director, UNR Personnel Services.
B.B.A., University of Massachusetts, Amherst, 1974; M.B.A., Univetsity of Montana, Missoula, 1983. (1984-1988)

Andreas W. Carl, M.D., Research Assistant Professor.
Physikum, Freie Universitat, Berlin, 1981; M.D., 1986. (1989)

John R. Carlile, M.D., Clinical Assistant Professor of Pediatrics.
M.D., University of Kansas, 1975. (1985)

James F. Carlin, M.D., Clinical Professor.
M.D., Western Reserve University, 1952. (1978)

Arthur W. Carlson, M.D., Clinical Professor.
B.S., University of California, Berkeley, 1958; M.D., McGill University, 1962. (1971-1979)

Kurt Carlson, M.D., Clinical Associate Professor.
B.Sc., University of Western Ontario, 1970; M.D., Queen's Univetsity, Ontario, 1974. (1983)

Thomas N. Carmena, M.D., Clinical Assistant Professor.
B.S., Louisiana State University, 1953; M.D., 1956. (1980)

Jannet Mari Carmichael, Pharm. D., Associate Professor of Family and Community Medicine.
B.S., University of Iowa, 1975; Pharm. D., University of the Pacific, 1981. (1979-1987)

*Graduate faculty

James R. Carr, Ph.D.,* Associate Professor of Geology.
B.S., University of Nevada, Reno, 1979; M.S., University of Arizona, 1981; Ph.D., 1983. (1986-1989)

Tyree Carr, M.D., Clinical Instructor of Surgery.
M.D., Loyola University of Chicago, 1976. (1985)

Eladio S. Carrera, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of Texas-Austin, 1976; M.D., Southwestern Medical School, 1980. (1988)

Anthony J. Carter, M.D., Clinical Assistant Professor of Pediatrics.
M.D., Louisiana State University, 1955. (1985)

Lewis W. Cary, B.A., Director of Magnetic Instruments Laboratory, Chemistry. (1988)

Clinton M. Case,* Ph.D., Research Professor, DRI.
B.A., Linfield College, 1963; M.S., University of Nevada, Reno, 1967; Ph.D., 1970. (1976-1979)

Patricia H. Cashman,* Ph.D., Principal Investigator, Geologic Sciences.
B.A., Middlebury College, 1972; Ph.D., University of Southern California, 1979. (1988)

Kathleen Cass, M.D., Clinical Assistant Professor.
B.A., Saint Xavier College, 1969; Ph.D., University of Iowa, 1975; M.D., 1977. (1984)

Stephen B. Castor, Ph.D., Industrial Minerals Geologist.
B.A., University of Nevada, Reno, 1971; Ph.D., 1972. (1988)

William N. Cathey,* Ph.D., Assistant Vice President for Academic Affairs and Professor of Physics.
B.S., University of Tennessee, 1961; M.S., 1962; Ph.D., 1966. (1967-1982)

Robert G. Caudill, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., University of Washington College of Arts and Sciences, 1961; M.D., University of Washington School of Medicine, 1964. (1989)

William J. Cavin, M.D., Clinical Associate Professor of Surgery.
M.D., Loma Linda University, 1958. (1985)

Geoffrey V. Cecchi, M.D., Clinical Assistant Professor.
M.D., Emory University, 1972. (1980)

Yunus Ali Cengel,* Ph.D., Assistant Professor of Mechanical Engineering.
B.S., Istanbul Technical University, 1976; M.A., North Carolina State University, 1980; Ph.D., 1984. (1984)

Steven K. Chai,* Ph.D., Associate Research Professor, Desert Research Institute and Department of Physics.
B.S., National Taiwan Univeristy, 1969; M.S., University of Nevada, Reno, 1973; Ph.D., 1978. (1978)

Jay Chamberlain, M.D., Clinical Assistant Professor.
B.S., Brigham Young University, 1971; M.D., University of New Mexico, 1975. (1982)

Joseph E. Chambers, D.P.M., Clinical Assistant Professor of Internal Medicine.
B.S., University of Nevada, Reno, 1970; D.P.M., 1978. (1989)

William O. Champney,* Ph.D., Associate Professor of Agricultural Economics.
B.S., Michigan State University, 1952; M.S., 1958; Ph.D., Kansas State University, 1969. (1967-1974)

Pallamraju Chanderraj, M.B.B.S., Clinical Assistant Professor.
M.B.B.S., Andhra University, 1971. (1980)

Dhanesh Chandra, Ph.D., Associate Professor, Chemical and Metallurgical Engineering.
B.S., Osmania University, 1967; M.S., University of Illinois, 1972; Ph.D., University of Denver, 1976. (1987)

Maria H. Chang, Ph.D., Associate Professor of Political Science.
B.A., University of California, Berkeley, 1973; M.A., 1975; Ph.D., 1983. (1989)

John N. Chappel,* M.D., Professor of Psychiatry.
B.A., University of Alberta, 1955; M.D., 1960; M.P.H., Harvard University, 1965. (1974)

Beverley A. Chase, M.Ed., Instructor, Intensive English, Continuing Education.
B.A., University of Washington, 1975; M.Ed., Temple University, 1988. (1989)

Charlotte F. Chase, Ph.D., Assistant Professor of Nursing.
B.S., Texas Christian University, 1967; M.A., New York University, 1976; Ph.D., Washington University, 1986. (1988)

Patricia M. Chatham, Ph.D., Assistant Professor of Psychiatry and Behavioral Sciences.
A.B., University of California, Berkeley, 1967; M.S., San Francisco State University, 1972; Ph.D., Wright Institute, 1975. (1984)

Indira Chatterjee, Ph.D., Assistant Professor of Electrical Engineering.
B.S., Bangalore University, 1973; M.S., Case Western University, 1977; Ph.D., University of Utah, 1981. (1988)

David E. Chavez, M.A., Research Associate in the Seismological Laboratory.
B.S., University of Puget Sound, 1977; M.A., University of Nevada, Reno, 1980. (1986)

Fabiola Merlinda Chavez, M.A., Director, Office of Minority Student Affairs.
B.A., New Mexico Highlands University, 1978; M.A., 1980. (1984)

Dennis J. Cheek, M.S.N., Instructor of Nursing.
B.S.N., California State University at Fresno, 1982; M.S.N., University of California at San Francisco, 1988. (1988)

Cyriac K. Chemplavil, M.D., Clinical Assistant Professor.
M.D., Kottaym Medical College, 1973. (1983)

Christine O. Cheney,* Ed.D., Assistant Professor of Curriculum and Instruction.
B.A., College of William and Mary, 1971; M.Ed., 1973; Ed.D., Indiana University, 1984. (1984)

Eric Strom Chino, M.D., Clinical Assistant Professor of Surgery.
B.S., Portland State University, 1976; M.D., University of Oregon Health Sciences, 1978. (1988).

Melisa N. Choroszy, Ph.D., Director of Admissions and Records.
B.A., Brandeis University, 1971; Ed.M., Tufts University, 1972; Ph.D., University of Arizona, 1983. (1989)

Harold C. Chotiner, M.D., Clinical Associate Professor of Obstetrics and Gynecology.
M.D., State University, New York-Brooklyn, 1969. (1985)

Bashir Chowdry, M.D., Clinical Assistant Professor of Surgery.
M.D., King Edward Medical College, 1968. (1985)

Don L. Christensen, M.D., Clinical Associate Professor.
B.S., University of Utah, 1952; M.D., 1955. (1975-1981)

G. Norman Christensen, M.D., Clinical Associate Professor.
B.S., University of Arizona, 1957; M.D., University of Tennessee, 1961. (1975-1981)

James L. Christensen, M.D., Clinical Assistant Professor of Surgery.
B.A., University of California-Riverside, 1967; M.D., Creighton University, 1971. (1988)

Peter C. Christenson, M.D., Clinical Associate Professor of Radiology.
M.D., University of Minnesota Medical School, 1963. (1984)

Steven Christenson, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of California, Davis, 1957; M.D., University of Southern California, 1961. (1989)

Linda L. Christy, M.S.W., Adjunct Assistant Professor of Social and Health Resources. (1986)

Shih-Fan Chu,* Ph.D., Professor of Economics.
B.A., National Taiwan University, 1955; M.S., University of Illinois, 1965; Ph.D., 1968. (1967-1977)

Thomas J. Cinque, M.D., Professor of Medicine, Las Vegas.
B.S., Fordham University, 1954; M.D., Creighton University, 1959. (1983)

Albert A. Cirelli, Jr., M.S., Assistant Professor of Animal Science.
B.S., Fresno State College, 1960; M.S., 1969. (1979)

Ellen Clark, G.I., M.D., Clinical Assistant Professor of Pathology.
B.A., University of Texas at Austin, 1977; M.D., Texas Tech University School of Medicine, Lubbock and Amarillo, 1984. (1989)

Kenneth M. Clark, M.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
M.D., University of Geneva Faculty of Medicine, 1956. (1984)

James F.W. Clark, Jr., M.D., Assistant Professor of Obstetrics and Gynecology.
A.B., Washington University, 1950; M.D., 1956. (1982)

Odette Clark, M.D., Clinical Associate Professor.
M.D., University of Geneva, 1956. (1983)

Paul S. Clark, M.D., Clinical Assistant Professor.
A.B., Princeton University, 1962; M.D., Cornell University, 1966. (1975)

Peter F. Clark, M.D., Clinical Associate Professor.
A.B., Stanford University, 1959; M.D., Harvard University, 1963. (1976-1979)

Robert W. Clark, M.D., Clinical Associate Professor.
B.S., University of Utah, 1961; M.D., 1964. (1975-1981)

Angela W. Clarke, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of Maryland, 1961. (1985)

Jack F. Clarke,* Ph.D., Counseling Psychologist, Counseling Center and Testing Services.
A.B., University of Redlands, 1958; M.S., University of Oregon, 1965; Ph.D., Arizona State University, 1971. (1970-1981)

Michael Cleveland,* D.M.A., Associate Professor of Music.
A.B., San Jose State College, 1960; M.M., University of Oregon, Eugene 1967; D.M.A., 1970. (1981)

Linda Clift, CPNP, Clinical Instructor of Pediatrics.
CPNP, University of California, San Francisco, 1981. (1985)

Robert C. Clift, M.D., Clinical Associate Professor.
B.A., University of Washington, 1961; M.D., University of Kansas, 1965. (1975-1979)

Daniel H. Cline, D.Ed., Senior Research Consultant, Research and Educational Planning Center.
B.A., University of Nevada, Reno, 1967; M.A., University of Michigan, Ann Arbor, 1975; D.Ed., Indiana University, Bloomington, 1981. (1983)

*Graduate faculty.

Sylvia A. Cobb, A.A., Core Curriculum Instructor, Sierra Nevada Job Corps.
A.A., Palomar College, 1983. (1986)

Gilbert F. Cochran,* Professor of Hydrogeology.
B.S., University of Nevada, Reno, 1967; M.S., 1968; Ph.D., 1973. (1969-1976)

Howard Coker, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Southern California, Los Angeles, 1979. (1984)

Douglas M. Colbert, M.S., Lecturer of Mathematics.
B.S., California State University, Long Beach, 1964; M.S., University of Nevada, Reno, 1969. (1983)

Richard Colby, M.A., Tutoring Specialist, Sierra Nevada Job Corps.
A.A., Grossmont College, 1969; A.B., San Diego State University, 1975; M.A., 1976. (1987)

Clarke D. Cole, M.D., Clinical Assistant Professor.
B.A., University of California Berkeley, 1968; M.D., University of Colorado, 1977. (1982)

Patrick J. Colletti, M.D., Clinical Assistant Professor of Pediatrics.
M.D., University of Iowa, 1975. (1984)

Richard D. Colquitt, M.D., Clinical Assistant Professor.
B.S., Northwestern University, 1958; M.D., 1961. (1982)

Martha W. Combs, Ed.D., Associate Professor of Curriculum and Instruction.
B.A., University of Florida, 1967; M.Ed., 1973; Ed.D., 1982. (1989)

Kathleen A. Conaboy, B.A., Director of Public Relations and Development, School of Medicine.
B.A., Villanova University, 1973. (1979)

Carol M. Condit, Ph.D., Assistant Professor of Plant Science.
B.A., University of California at Berkeley, 1973; Ph.D., 1979. (1988)

Ada F. Cook, M.Ed., Director of Special Programs and Academic Skills Center.
B.S., Jackson State College, 1958; M.Ed., Tennessee Agricultural and Industrial State University, 1966. (1970-1979)

Kathie E. Coopersmith, M.D., Clinical Assistant Professor.
B.S., University of Utah, 1971; M.D., University of Nevada, Reno, 1981. (1984)

Ralph J. Copolla, M.D., Clinical Assistant Professor.
B.A., Providence College, 1955; M.D., Georgetown University, 1959. (1970)

Michael S. Coray,* Ph.D., Associate Professor of History.
B.A., University of California, Santa Barbara, 1966; M.A., 1969; Ph.D., 1973. (1972-1973)

Robert C. Corcoran,* Ph.D., Assistant Professor of Chemistry.
B.A., University of Chicago, 1978; M.A., Columbia University, New York 1979; M.Phil., 1983; Ph.D., 1984. (1986)

Michael C. Corlee, M.L.S., Computer Reference Librarian.
B.A., University of Oklahoma, 1970; M.L.S., 1974. (1989)

Emmalina G. Cortez, M.D., Clinical Assistant Professor.
M.D., University of the Philippines, 1969. (1979)

Timothy D. Coughlin, B.A., Clinical Assistant Professor.
B.A., Tulane University, 1968. (1984)

David C. Coulson,* Ph.D., Associate Professor and Director of Graduate Studies in Journalism.
B.A., California State University, Sacramento, 1973; M.A., Ohio State University, 1974; Ph.D., University of Minnesota, 1982. (1986)

William E. Courchesne, Ph.D., Assistant Professor of Microbiology.
A.B., University of California-Berkeley, 1976; Ph.D., Massachusetts Institute of Technology, 1985. (1989)

Kenneth L. Cox, M.D., Clinical Assistant Professor.
B.S., Seattle University, 1968; M.D., University of Washington, 1971. (1982)

William L. Cox, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Indiana, 1955. (1985)

Grant R. Cramer, Ph.D., Assistant Professor of Plant Science.
B.S., University of Massachusetts, 1980; M.S., University of California at Davis, 1982; Ph.D., 1985. (1988)

Milford N. Crandall, Clinical Instructor.
Diploma, Helmuth School of Nursing, 1952; Diploma, Lackland Air Force Base School of Anesthesia, 1959. (1981)

Alice M. Crites, M.S., Area Extension Specialist.
B.S., Southeast Missouri State University, 1972; M.S., University of Missouri Columbia, 1979. (1984)

Dennis J. Cronan, Ph.D., Assistant Professor of English.
B.A., University of Rhode Island, 1978; M.A., University of Minnesota, 1981; Ph.D., 1986. (1987)

Joseph N. Crowley,* Ph.D., President and Professor of Political Science.
B.A., University of Iowa, 1959; M.A., Fresno State College, 1963; Ph.D., University of Washington, 1967. (1966-1979)

Daniel E. Culhane, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of California-Santa Barbara, 1976; M.D., University of California-Los Angeles, 1980. (1988)

Rhoda E. Cummings,* Ed.D., Associate Professor of Curriculum & Instruction.
B.A., University of Texas, 1982; M.Ed., Texas Tech University, 1982; Ed.D., 1985. (1985-1988)

Steve Cunningham, M.D., Clinical Assistant Professor.
B.A., Northwestern University, 1965; M.D., University of Nebraska Medical Center, 1970. (1978)

Arrah C. Curry, M.D., Clinical Assistant Professor.
B.A., Union College, 1954; M.D., Loma Linda University, 1958. (1971)

Richard A. Curry,* Ph.D., Associate Dean, College of Arts & Science, and Professor of Foreign Languages and Literatures.
B.A., University of Washington, 1964; M.A., 1967; Ph.D., 1971. (1976-1982)

LTC Norbert E. Czech, Professor of Military Science. (1989)

George Danko, Ph.D., Visiting Research Associate, Mining Engineering.
M.S., University of Budapest, 1968; M.S., University of Eotvos Lorand, Budapest, 1975; Ph.D., University of Budapest, 1976. (1986)

Gary S. Dankworth, Clinical Assistant Professor.
B.S.M., University of Washington, 1973; M.D., University of California Irvine, 1977. (1982)

William G. Danton, Ph.D., Assistant Professor of Psychiatry & Behavioral Sciences.
B.A., California State University Northridge, 1968; M.A., University of Houston, 1975; Ph.D., 1975. (1976)

Lee B. Darrah, III, M.D., Clinical Assistant Professor of Radiology.
M.D., Washington University, 1979. (1985)

James B. Daugharthy, M.D., Clinical Assistant Professor of Surgery, Clinical Assistant Professor of Family and Community Medicine.
M.D., Loma Linda University, 1971. (1985)

Robert M. Daugherty, Jr., M.D., Ph.D., Dean of Medicine, Professor of Internal Medicine and Physiology.
A.B., University of Kansas, 1956; M.D., 1960; M.S., University of Oklahoma, 1964; Ph.D., 1965. (1981)

Sandra A. Daugherty, M.D., Ph.D., Professor of Internal Medicine.
A.B., University of Kansas, 1956; M.D., 1960; Ph.D., University of Oklahoma, 1966. (1981-1983)

Barry S. Davidson, Ed.D., Associate Director of Admissions.
B.S. in Ed., Kansas State College of Pittsburg, 1971; M.S., 1973; Ed.S., George Peabody College for Teachers, 1974; Ed.D., University of Arkansas, 1977. (1980-1982)

Jane P. Davidson,* Ph.D., Professor of Art.
B.A., Louisiana State University, 1969; M.A., 1970; M.A., University of Kansas, 1973; M. Phil., 1975; Ph.D., 1975. (1978-1988)

Richard O. Davies, Ph.D., Professor of History.
B.A., Marietta College, 1959; M.A., Ohio University, 1960; Ph.D., University of Missouri, Columbia, 1963. (1980)

Deborah Davis,* Ph.D., Associate Professor of Psychology.
B.A., University of Texas at Austin, 1970; Ph.D., Ohio State University, 1973. (1978)

Henry F. Davis, M.D., Clinical Assistant Professor.
B.A., Stanford University, 1959; M.D., 1962. (1975)

John M. Davis, M.D., Clinical Assistant Professor of Internal Medicine. (1986)

Larry D. Davis, M.S., Research Consultant, Research and Educational Planning Center.
B.S., Illinois State Normal University, 1955; M.S., 1964. (1980-1981)

Robert D. Davis,* Ph.D., Associate Professor of Mathematics.
B.S., North Carolina State College of Agriculture and Engineering, 1961; M.S., 1963; Ph.D., Florida State University, 1969. (1969-1974)

Jason Davison, B.S., Area Extension Agent, Cooperative Extension Service.
B.S., University of Nevada, Reno, 1980. (1985)

William N. Dawson, Jr., M.D., Clinical Assistant Professor.
B.S., University of Tennessee, 1965; M.D., University of Tennessee Center for the Health Sciences, 1967. (1976)

Paul A. deBello, M.D., Clinical Assistant Professor of Internal Medicine.
M.B., University of California-Los Angeles, 1979. (1988)

Ann Graney De Lett, M.S., Assistant Professor of Food and Nutrition, Home Economics, and Assistant Professor of Nutrition Education and Research Program, Medical School.
B.A., California State University, San Diego, 1972; M.S., University of Nevada, Reno, 1979. (1986)

Louis A. Delionback, M.D., Clinical Assistant Professor.
B.S., University of Alabama, 1972; M.D., University of Alabama, Birmingham, 1975. (1984)

Charles R. Dely, B.S., Business Manager, Lawlor Events Center.
B.S., University of Nevada, Reno, 1986. (1988)

Susan Dely, B.A., Assistant Manager, College Inn.
B.A., University of Nevada, Reno, 1979. (1985)

Andrea De Maskey,* Ph.D., Assistant Professor of Managerial Sciences.
B.B.A., Kent State University, 1980; M.B.A., 1982; Ph.D., 1987. (1986)

Maryann Demchak,* Ph.D., Assistant Professor of Curriculum and Instruction.
B.S., Clarion State University, 1979; M.S., Shippensburg State University, 1982; M.P.A., Pennsylvania State University, 1984; Ph.D., Kent State University, 1987. (1988)

*Graduate faculty.

Craig M. dePolo, B.S., Research Associate, Nevada Bureau of Mines and Geology.
B.S., California State University, Sacramento, 1982. (1986)

Dipak K. Desai, M.D., Assistant Professor of Internal Medicine.
M.D., Gujarat University, 1973. (1982)

Kusum D. Desai, M.D., Clinical Associate Professor, Internal Medicine.
M.D., Seth G.S. Medical College, Bombay University, Bombay, 1973. (1987-1988)

Diana C. Desimone, M.S., Director, Business Center North Personnel.
M.S., City University of New York, 1976. (1988)

Sachiko de St. Jeor,* Ph.D., Associate Professor of Clinical Nutrition and Director, Nutrition Education and Research Program, Family and Community Medicine.
B.A., University of Utah, 1963; R.D., State University of Iowa, 1964; M.A., 1965; Ph.D., Pennsylvania State University, 1980. (1980)

Stephen C. de St. Joer,* Ph.D., Associate Professor of Microbiology and Acting Director of Cellular and Molecular Biology.
B.S., University of Utah, 1964; Ph.D., 1969. (1979)

Michael D. Detmer, M.D., Clinical Instructor.
B.S., University of Michigan, 1973; M.D., 1975. (1982)

Dale A. Devitt,* Ph.D., Assistant Professor of Plant Science.
B.S., University of California, Riverside, 1972; M.S., 1975; Ph.D., 1982. (1984)

Susan D. DeVoge,* Ph.D., Adjunct Associate Professor of Psychology.
B.S., West Virginia University, 1966; M.S., 1967; Ph.D., University of North Carolina, 1973. (1973)

Ashok K. Dhingra, M.B.A., Vice President for Finance and Administration.
M.B.A., University of California, Los Angeles, 1970. (1983)

Robert Dickens, Ph.D., Coordinator, Legislative Relations Program and Adjunct Associate Professor of Political Science.
B.A., University of Nevada, Reno, 1969; M.A., 1973; Ph.D., University of Arizona at Tucson, 1978. (1985)

Charles R. Dickson, Ph.D., Adjunct Professor of Psychology.
B.A., Indiana University, 1959; Ph.D., University of Nevada, Reno, 1971. (1972-1976)

Frank W. Dickson,* Ph.D., Professor of Geological Sciences.
B.A., University of California, Los Angeles, 1950; B.S., 1953; Ph.D., 1955. (1986)

David L. Diedrichsen, M.D., Clinical Assistant Professor.
M.D., Washington University, 1971. (1977)

Paul E. Dieringer, M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1972; M.D., University of Southern California, 1976. (1981)

John E. Dietrich, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., Walla Walla Community College, 1971; B.S., Washington State University, 1973; M.P.H., Tulane School of Public Health; M.D., Tulane University School of Medicine, 1977. (1989)

John A. Difiore, M.D., Clinical Associate Professor.
A.B., New York University, 1939; M.D., Creighton University, 1943. (1982)

Ann E. Diggins, B.A., Community Relations Coordinator of AHEC Program.
B.A., University of Nevada, Reno, 1986. (1989)

Robert Lee Dillard,* Ph.D., Professor of Speech and Theatre.
B.S., Southwest Missouri State College, 1955; M.A., University of California, Los Angeles, 1958; Ph.D., University of Missouri, 1965. (1968-1980)

Phillip J. Di'Saia, M.D., Clinical Professor of Obstetrics and Gynecology.
M.D., Tufts University, 1963. (1985)

John L. Dobra,* Ph.D., Associate Professor of Economics.
B.S., Portland State University, 1972; M.S., 1975; Ph.D., Virginia Polytechnical Institute, 1980. (1980-1984)

Joe D. Dodd, Executive Director of Fire Protection Training Academy. (1982)

Russell R. Dodge, M.D., Clinical Associate Professor of Internal Medicine.
B.S., Montana State University, 1968; M.D., Northwestern University Medical School, Illinois, 1972. (1986)

Elizabeth Dodson, Ed.S., Program Administrator of Geriatric and Gerontology Center.
B.A., University of Utah, 1966; M.S., University of Arizona, 1970; Ed.S., University of Nevada, Reno, 1985. (1985)

Donald J. Dombrowski, M.D., Clinical Assistant Professor of Surgery.
M.D., Loyola University, 1962. (1985)

Joyce V. Donahoo, B.S., Clinical Instructor of Clinical Laboratory Science.
B.S., Holy Names College, 1962. (1984)

John E. Dooley, M.D., Clinical Assistant Professor.
B.A., Wesleyan University, 1967; M.D., Albany Medical College, 1971. (1978)

Sterling M. Doubrava, M.D., Clinical Assistant Professor.
M.D., University of Buffalo, 1959. (1982)

Bruce M. Douglas,* Ph.D., Professor of Civil Engineering.
B.S.C.E., University of Santa Clara, 1959; M.S., University of Arizona, 1965; Ph.D., 1965. (1964-1973)

Scott G. Douglass, Humanities Producer, Instructional Media Services. (1987)

William A. Douglass,* Ph.D., Professor and Basque Studies Coordinator.
B.A., University of Nevada, Reno, 1961; M.A., University of Chicago, 1966; Ph.D., 1967. (1978-1981)

Stephen D. Dow, M.D., Clinical Associate Professor.
B.S., University of Michigan, 1956; M.D., 1960. (1971-1979)

Charles J. Downing,* Ed.D., Professor, Counseling and Educational Psychology.
B.A., University of California, Santa Barbara, 1955; M.A., San Jose State College, 1963; Ed.D., Indiana University, 1971. (1976-1982)

Terrance S. Drake, M.D., Clinical Associate Professor.
B.A., Michigan State University, 1968; M.D., Wayne State University, 1972. (1982)

James S. Draper, Ph.D., Clinical Assistant Professor of Cranio Facial Pain and Temporo Mandibular Joint Dysfunction Program.
B.A., University of California, Riverside, 1970; M.A., California State University, Fresno, 1972; Ph.D., Utah State University, Logan, 1976. (1986)

Charles E. Dreiling,* Ph.D., Associate Professor of Biochemistry.
B.A., University of Washington, 1964; M.S., New Mexico State University, 1968; Ph.D., Oregon State University, 1971. (1971-1981)

Nellie Droes, D.S.N., Assistant Professor of Nursing.
B.S., Stanford University, 1957; M.S., University of Nevada, Reno, 1975; D.S.N., University of California, San Francisco, 1989. (1975-1976)

Glenda R. Duckworth, A.M., Area Extension Agent and Assistant Agent in Charge, Cooperative Extension Service.
B.S.E., Nebraska State Teachers College, 1965; A.M., University of Northern Colorado, 1973. (1973-1982)

Burton A. Dudding, M.D., Clinical Professor.
A.B., Harvard College, 1960; M.D., Cornell University, 1964. (1984)

Georgia S. Dudding, B.S., Clinical Instructor.
B.S., University of Nevada, Reno, 1980. (1982)

John S. Dudek, M.D., Clinical Assistant Professor.
M.D., Creighton University, 1965. (1982)

John Dufferena, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., University of Nevada School of Medicine, Reno, 1983. (1987)

James M. Dunn, Assistant Professor of Military Science. (1986)

Merrily DuPree, Ph.D., Lecturer in English.
B.A., Colorado State University, Fort Collins, 1967; M.A., University of Nebraska at Lincoln, 1971; Ph.D., Syracuse University, 1985. (1985)

Walter K. Duvall, Industry Coordinator, Fire Protection Training Academy. (1989)

Edward F. Dziob, M.D., Clinical Assistant Professor of Radiology.
B.S., Holy Cross College, 1965; M.D., Jefferson Medical College, 1969. (1989)

William R. Eadington,* Ph.D., Professor of Economics.
B.S., University of Santa Clara, 1967; M.A., Claremont Graduate School and University Center, 1970; Ph.D., 1973. (1969-1981)

Betty Jean Earl, M.P.H., Adjunct Assistant Professor of Nursing.
B.S., Berea College, 1961; M.P.H., University of California, Berkeley, 1968. (1971-1980)

Diane L. Early, M.A., Clinical Instructor of Nursing.
B.S., University of Nevada, Reno, 1970; M.A., 1982. (1982)

John M. Eaton, M.D., Clinical Professor of Internal Medicine.
B.A., Stanford University, 1956; M.D., Harvard Medical School, 1960. (1986)

Charles D. Ebert, M.D., Clinical Assistant Professor of Surgery.
A.B., West Virginia University, 1960; M.D, George Washington University, 1964. (1986)

Christopher G. Eckel, M.D., Clinical Assistant Professor of Radiology.
S.B., Massachusetts Institute of Technology, 1974; M.D., Case-Western Reserve University, 1979. (1989)

Richard Eckert, Ph.D., Adjunct Professor of Range, Wildlife and Forestry. (1986)

Dana T. Edberg, Lecturer in Accounting and Computer Information Systems. (1983)

John M. Edmiston, M.D., Associate Professor of Surgery.
A.B., University of California, San Francisco, 1943; M.D., 1946. (1971-1976)

David A. Edwards, M.D., Clinical Assistant Professor.
B.A., Transylvania University, 1968; M.D., Creighton Univetsity, 1972. (1978)

Jerome E. Edwards,* Ph.D., Professor of History.
B.A., Yale University, 1958; A.M., University of Chicago, 1960; Ph.D., 1966. (1965-1981)

Dwight Egbert,* Ph.D., Associate Professor of Electrical Engineering and Computer Science.
B.A., University of Kansas, 1966; B.S., 1968; M.S., 1971; Ph.D., 1976. (1985)

Ascar Egtedar, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Tehran, 1968. (1988)

David Ehrke,* D.M.A., Associate Professor of Music.
B.M., San Francisco State University, 1969; M.M., New England Conservatory, 1971; D.M.A., University of Southern California, 1974. (1978-1983)

Richard A. Eigenheer, Ph.D., Adjunct Associate Professor of Geography.
B.A., University of Califorina, Berkeley, 1961; M.A., California State University, Sacramento, 1966; Ph.D., University of California, Davis, 1976. (1987)

*Graduate faculty.

Ikpe Ekpoudia, M.D., Clinical Assistant Professor of Pediatrics.
B.S., Tuskegee Institute, 1972; M.S., 1974; M.D., University of Alabama, 1978. (1989)

Kenneth C. Elam, M.D., Clinical Assistant Professor.
B.S., Muhlenberg College, 1968; M.D., George Washington University, 1972. (1981)

Cpt. Patricia A. Eldredge, Assistant Professor of Military Science. (1989)

John A. Ellerton, M.D., Assistant Professor of Internal Medicine.
B.S., McGill University, 1970; M.D., 1974. (1980)

James B. Ellis, M.A., Assistant Professor of Journalism.
B.S., East Carolina University, 1954; M.A., 1958. (1985)

Richard Ellis, M.D., Clinical Associate Professor.
A.B., Johns Hopkins University, 1957; M.D., 1961. (1976-1982)

Robert G. Elston, M.A., Adjunct Lecturer in Anthropology.
B.A., San Francisco State College, 1965; M.A., Washington State University, 1970. (1984)

Larry M. Engstrom, M.M., Assistant Professor of Music.
B.A., California State University, Fresno, 1981; M.M., North Texas State University, 1983. (1987)

Nicki L. Eoff-Rippee, Ph.D., Assistant Professor of Recreation, Physical Education, and Dance.
B.S., Abilene Christian College, 1968; M.Ed., Texas A & M University, 1969; Ph.D., Arizona State University, 1985. (1978)

Jon A. Epps,* Ph.D., Dean, College of Engineering and Professor of Civil Engineering.
B.S., University of California, Berkeley, 1965; M.S., 1966; Ph.D., 1968. (1982)

Franco Erculei, M.D., Clinical Assistant Professor.
B.A., Liceo-Ginnasio M. Delfico, 1949; M.D., University of Bologna, 1955. (1982)

John Marshall Erickson, M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1972; M.D., University of Colorado, 1976. (1984)

Marcus A. Erling, M.D., Clinical Assistant Professor, Pathology and Laboratory Medicine.
B.S., University of Nevada, Reno, 1974; M.D., University of Alabama, Huntsville, 1978. (1987)

Susan M. Ervin, M.S., Assistant Professor of Nursing.
B.S., University of Utah, 1974; M.S., 1980. (1981-1985)

Ahmed Essa,* Ph.D., Associate Professor of English.
B.S., Ohio University, 1956; M.A., University of Southern California, 1962; Ph.D., 1969. (1967-1976)

Eva L. Essa,* Ph.D., Associate Professor of Human Development and Family Sciences.
B.A., University of Southern California, 1963; M.S., University of Nevada, Reno, 1971; Ph.D., Utah State University, 1977. (1971-1981)

Mehdi Etezadi-Amoli,* Ph.D., Associate Professor of Electrical Engineering and Computer Science.
B.S., New Mexico State University, 1970; M.S., 1972; Ph.D., 1974. (1983)

William L. Eubank,* Ph.D., Associate Professor of Political Science.
B.S., University of Houston, 1967; M.A., 1969; Ph.D., University of Oregon, 1978. (1979-1988)

H. Mark Evans, Adjunct Assistant Professor of Psychology. (1983)

Janice W. Evans, M.A., Assistant Director of Development, School of Medicine.
B.A., Colorado State College, 1960; M.A., University of Nevada, Reno, 1985. (1985)

Joseph E. Evans, M.D., Clinical Associate Professor .
B.A., Carroll College, 1961; M.D., St. Louis University, 1965. (1981)

Victoria Evans, M.S., Lecturer in Mathematics and Computer Science.
B.S., Louisiana State University, 1963; M.S., 1968; M.S., Florida Institute of Technology, 1973. (1985)

William N. Evans,* M.D., Clinical Assistant Professor of Psychology.
B.S., University of California, Irvine, 1972; M.D., 1976. (1981)

M. Frank Evarts, Ph.D., Adjunct Assistant Professor.
B.A., Trinity College, 1966; Ph.D., Vanderbilt University, 1975. (1979)

Richard L. Everett, M.S.,* Adjunct Lecturer.
B.S., University of Nevada, Reno, 1971; M.S., 1974. (1976)

David A. Evert, M.D., Clinical Assistant Professor, Internal Medicine.
B.A., University of Missouri, Columbia, 1969; M.D., University of Missouri, Kansas City, 1974. (1987)

Joanne Everts, Ph.D., Program Administrator of Child and Family Center.
B.S., Winthrop College, 1972; M.A., University of Oklahoma, 1973; Ph.D., Texas Woman's University, 1979. (1987)

Warren H. Evins, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., State University of New York School of Medicine, 1977. (1984)

Cahit Evrensel, Ph.D., Assistant Professor of Mechanical Engineering.
B.S., Middle East Technical University, 1976; M.S., 1980; Ph.D., Lehigh University, 1985. (1985)

Danny K. Ewart, Assistant Professor of Military Science. (1984)

Herberta C. Ewing, M.D., Clinical Instructor of Surgery.
M.D., University of Alabama, 1976. (1985)

Christopher H. Exline,* Ph.D., Professor of Geography.
B.A., Sonoma State College, 1971; M.A., San Francisco State University, 1974; Ph.D., University of California, Berkeley, 1978. (1981-1988)

Mohammad S. Fadali, Ph.D.,* Associate Professor of Electrical Engineering & Computer Science.
B.S., Cairo University, Egypt, 1974; M.S., Umist, Manchester, England, 1977; Ph.D., University of Wyoming, 1980. (1985-1989)

Steven C. Fales, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of Southern California, Los Angeles, 1975. (1984)

Mortimer S. Falk, M.D., Clinical Professor.
A.B., University of Michigan, 1939; M.S.P.H., 1940; M.D., 1943. (1972-1980)

Christian Faltis,* Ph.D., Associate Professor of Curriculum and Instruction.
B.A., San Francisco State, 1973; M.A., Stanford University, 1981; Ph.D., 1983. (1987)

Phillip F. Fanchon,* Ph.D., Associate Professor of Economics.
B.A., University of California, Santa Barbara, 1972; M.A., 1975; M.A., 1977; Ph.D., 1982. (1986)

Douglas Fantazia, R.N.C., Clinical Instructor, Pediatrics.
B.S., California State College, Stanislaus, 1979; N.N.P., University of California, Irvine Medical Center, Orange, 1982. (1987)

Rita C. Farnham,* D.N.Sc., Associate Professor of Nursing.
B.S.N., Georgetown University, 1958; M.A., Fairfield University, 1960; M.S., University of Colorado, Denver, 1965; D.N.Sc., Boston University, 1970. (1983)

Perry G. Farquhar, B.A., Nurse Practitioner, Sierra Nevada Job Corps Center.
A.A., Long Beach City College, 1975; B.A., Hawaii Pacific College, 1978. (1989)

Katrina Farwig, M.S., Clinical Instructor, Genetics.
B.A., Texas A&M University, 1982; M.S., University of Colorado, 1985. (1987)

Richard H. Fashbaugh,* Ph.D., Professor of Mechanical Engineering.
B.S.E., University of Michigan, 1949; M.S.E., 1950; Ph.D., University of Colorado, 1969. (1975-1979)

Karen Fathie, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Tehran, 1955. (1982)

Kathleen Fawcett, D.N.Sc., Assistant Professor of Nursing.
B.S.N., State University of New York at Buffalo, 1973; M.S., 1975; D.N.Sc., Rush University, 1986. (1986)

Karl Fazekas, M.D., Clinical Assistant Professor.
M.D., University of Vienna, 1965. (1980)

Harold L. Feikes, M.D., Clinical Associate Professor.
B.A., Union College, 1954; M.D., Loma Linda University, 1958. (1975)

Alan W. Feld, M.D., Clinical Associate Professor.
A.B., Princeton University, 1951; M.D., Columbia University, 1955. (1975)

Bernard H. Feldman, M.D., Associate Professor of Pediatrics and Obstetrics and Gynecology.
M.D., State University of New York, 1959. (1985)

David Fenimore, M.A., Lecturer of English.
B.A., University of Pennsylvania, 1973; M.A., University of Nevada, Reno, 1988. (1989)

Patricia A.L. Fenkell, B.Ed., Master Teacher, Home Economics.
B.A., University of Nevada, Reno, 1973; B.Ed., University of Hawaii, Honolulu, 1985. (1986)

Paul R. Fenske,* Professor of Hydrogeology.
B.S., South Dakota School of Mines and Technology, 1950; M.S., University of Michigan, 1951; Ph.D., University of Colorado, 1963. (1971)

Peter R. Fenwick, M.D., Clinical Assistant Professor.
M.D., St. Andrews University, 1967. (1982)

Neal A. Ferguson,* Ph.D., Dean of Continuing Education and Associate Professor of History.
B.A., Wichita State University, 1965; M.A., 1967; Ph.D., University of Oregon, 1971. (1970-1977)

Roberta C. Ferguson, Ph.D., Adjunct Assistant Professor of Psychology.
B.A., Wichita State University, 1966; M.A., University of Nevada, Reno, 1972; Ph.D., 1980. (1980)

George C.J. Fernandez, Ph.D., Assistant Professor of Plant Science.
B.S., Peradeniya University, 1976; M.S., Texas A&M University, 1983; Ph.D., 1985. (1988)

James H. Feusner, M.D., Clinical Assistant Professor.
B.A., University of Washington, 1968; M.D., 1972. (1982)

Robert Z. Fialkow, M.D., P.A., Clinical Assistant Professor of Internal Medicine.
B.S., City College of New York, 1968; M.D., State University of New York, 1972. (1989)

Garry Fickes,* Ph.D., Associate Professor of Chemistry.
B.S., University of California, Davis, 1960; Ph.D., University of Wisconsin, Madison, 1965. (1966)

James R. Firby,* Ph.D., Associate Professor of Geology-Geography.
A.B., San Francisco State College, 1960; M.A., University of California, Berkeley, 1963; Ph.D., 1969. (1966-1975)

*Graduate faculty.

Michael J. Fischer, M.D., Clinical Assistant Professor of Surgery.
B.S., Ohio State University, 1972; M.D., Universidad Autonoma de Guadalajara, 1976. (1988)

Paul Fischer, M.D., Clinical Instructor of Internal Medicine. (1986)

Angela A. Fisher, A.A., Clinical Instructor.
A.A., Carnegie Institute of Technology, 1961. (1980)

Barry L. Fisher, M.D., Clinical Assistant Professor.
B.A., St. John's College, 1962; M.D., Yeshiva University, 1966. (1981)

Gary L. Fisher,* Ph.D., Associate Professor of Counseling and Educational Psychology.
B.S., University of Washington, 1973; M.Ed., 1974; Ph.D., 1982. (1983-1988)

Susan Fisk-Sander, M.D., Assistant Professor of Internal Medicine.
B.A., Mt. Holyoke College, 1977; M.D., Stanford University, 1984. (1988)

Patrick M. Flannagan, M.D., Clinical Associate Professor of Obstetrics and Gynecology.
B.S., University of Notre Dame, 1958; M.D., Tulane University, 1962. (1982)

Keryl L. Fleming, M.S., Geologist/Computer Specialist, Nevada Bureau of Mines and Geology.
B.S., University of Nevada, Reno, 1979; M.S., University of Arizona, Tucson, 1983. (1985)

Kenneth H. Fliess, Ph.D., Assistant Professor of Anthropology.
B.A., Rutgers University, 1979; M.A., University of Kansas, Lawrence, 1982; Ph.D., University of Texas at Austin, 1986. (1989)

Duane G. Flom, Ph.D., Area Extension Agent, Cooperative Extension Service.
B.S., North Dakota State University, 1979; M.S., 1979; Ph.D., University of Idaho, 1986. (1987)

Joseph P. Fogel, M.D., Clinical Assistant Professor of Surgery/Anatomy.
B.S., University of San Diego, 1971; M.D., Chicago Medical School, 1979. (1985)

Eunice Foldesy, M.S., Research Consultant, Research and Educational Planning Center.
B.S., Chadron State College, 1966; M.S., University of Nebraska, 1973. (1986)

George Foldesy,* Ed.D., Associate Professor of Educational Leadership
B.S., Chadron State College, 1965; M.S., 1968; Ed.S., University of Nebraska, Omaha, 1970; Ed.D., University of Nebraska, Lincoln, 1974. (1984)

John G. Folkes, M.A., Lecturer in History.
B.A., University of Nevada, 1957; M.A., 1964. (1969)

Victoria M. Follette, M.S., Assistant Professor of Psychology.
B.S., University of Washington, 1983; M.S., 1985. (1989)

William C. Follette, Ph.D., Assistant Professor of Psychology.
B.S., University of Washington, 1977; Ph.D., 1984. (1989)

Hugh C. Follmer, M.D., Clinical Associate Professor.
B.S., University of Nebraska-Lincoln, 1952; M.D., University of Nebraska Medical Center, 1956. (1975-1979)

W. Darrell Foote,* Ph.D., Professor of Animal Science.
B.S., Utah State Agricultural College, 1953; M.S., University of Wisconsin, 1956; Ph.D., 1959. (1959-1970)

Caroline Ford, Director of Office of Rural Health, Medical School. (1983)

William R. Ford, Jr., M.D., Clinical Assistant Professor of Surgery.
B.A., Columbia Union College, 1961; M.D., Loma Linda University, 1966. (1988)

Michael F. Fornes, M.D., Professor, Director of Residency Program and Vice-Chairman-Las Vegas, Internal Medicine.
M.D., Georgetown University, 1961. (1987)

Quincy E. Fortier, M.D., Clinical Assistant Professor.
B.S., University of South Dakota, 1941; M.B., University of Minnesota, 1944; M.D., 1945. (1981)

Randall M. Foster, M.D., Clinical Professor.
M.D., Loyola University, 1952. (1980)

Mervyn B. Fouse, M.D., Clinical Assistant Professor of Surgery.
B.S.C., McMaster University, 1965; M.D., University of Toronto, 1969. (1988)

Catherine S. Fowler,* Ph.D., Professor of Anthropology.
B.A., University of Utah, 1962; M.A., University of Pittsburgh, 1966; Ph.D., 1972. (1964-1983)

Don D. Fowler,* Ph.D., Marnie Kleberg Professor of Anthropology and Historic Preservation/Executive Director, Historic Preservation Program.
B.A., University of Utah, 1959; Ph.D., University of Pittsburgh, 1965. (1978)

Barbara A. Fox-Sabatini, Instructor's Certificate, Lecturer of Dance.
Instructor's Certificate, Royal Academy of Dance, 1989. (1989)

Warren H. Fox,* Ph.D., Vice Chancellor for Academic Affairs, System Administration.
A.B., University of California, Berkeley, 1967; M.P.A., University of Southern California, 1968; Ph.D., 1973. (1974-1979)

Elizabeth A. Francis, Ph.D., Associate Professor of English.
A.B., Mt. Holyoke College, 1962; M.A., Yale University, 1965; Ph.D., 1970. (1978)

Barry S. Frank, M.D., Assistant Professor of Pediatrics.
B.M.S., Northwestern University, 1968; M.D., 1972. (1981)

Margaret E. Franklin, Ph.D., Senior Research Consultant, Research and Educational Planning Center.
B.S., Purdue University, 1959; M.S., 1960; Ph.D., 1963. (1977)

Jenny C. Frayer, M.B.A., Associate Dean of Finance/Administration, College of Agriculture, Nevada Cooperative Extension, Nevada Agricultural Experiment Station.
B.S., University of Nevada, Reno, 1977; M.B.A., 1987. (1982)

John H. Frederick,* Ph.D., Assistant Professor of Chemistry.
A.B., Princeton University, 1980; A.M., Harvard University, 1982; Ph.D., 1985. (1988)

Johanna Fricke, M.D., Clinical Assistant Professor.
M.D., H. Sophie Newcomb College of Tulane University, 1967. (1984)

Michael V. Fromhart, Ph.D., Adjunct Associate Professor of Psychology.
B.A., University of Florida, 1963; M.A., 1965; Ph.D., 1967. (1976)

John E. Frook, M.A., Visiting Professor.
B.A., Montana State University, 1963; M.A., University of California, Los Angeles, 1964. (1983)

H. Randall Frost, Ph.D., Project Director, Sierra Nevada Job Corps Center.
B.G.Ed., University of Omaha, 1960; M.Ed., University of Nevada, Reno, 1967; Ph.D., University of Colorado, 1978. (1976-1981)

Ilene Frost, B.S., Clinical Instructor of Nursing.
B.S., University of Nevada, Reno, 1977. (1986)

Paul J. Fry, M.D., Clinical Instructor of Surgery.
B.S., University of Notre Dame, 1953; M.D., University of Illinois, 1957. (1983)

Maurice C. Fuerstenau,* Ph.D., Professor of Chemical and Metallurgical Engineering
B.S., South Dakota School of Mines, 1955; M.S., Massachusetts Institutional Tech, 1957; Ph.D., 1961. (1988)

Billy J. Fuller, Ph.D.,* Associate Professor of Accounting and Computer Information Systems.
B.B.A., University of Mississippi, 1955; M.B.A., 1966; Ph.D., 1973. (1976)

Colin M. Fuller, M.D., Clinical Assistant Professor.
B.S., Bates College, 1969; M.D., Tufts University, 1973. (1980)

Kin Jiro Futamachi, Ph.D., Adjunct Assistant Professor. (1984)

Robert J. Gabrielli, B.A., News Bureau Manager, Office of Public Information.
B.A., University of Nevada, Reno, 1978. (1981)

Michael D. Gainey, M.D., Clinical Associate Professor.
B.E.E., Cornell University, 1958; M.D., University of California, San Francisco, 1965. (1971-1978)

Joseph Galata, M.B.A., Recruitment Coordinator, Sierra Nevada Job Corps.
B.A., The American Institute, Tehran, Iran, 1978; B.A., Southwest University, 1984; M.B.A., 1986. (1986)

Shelba G. Gamble, Administrative Assistant to the President. (1976)

Richard P. Ganchan, M.D., Clinical Assistant Professor.
B.A., Rice University, 1964; M.D., Baylor College of Medicine, 1968. (1977)

Gary G. Gansert, M.D., Clinical Assistant Professor.
B.S., University of Texas at Arlington, 1970; M.D., University of Texas Medical Branch, 1975. (1979)

M. Richard Ganzel,* Ph.D., Associate Professor of Political Science.
B.A., Carroll College, 1963; Ph.D., Claremont Graduate School, 1970. (1970-1976)

Beatrice T. Gardner,* Ph.D., Professor of Psychology.
A.B., Radcliffe College, 1954; M.S., Brown University, 1956; Ph.D., Oxford University, 1959. (1964-1973)

Larry W. Gardner, M.D., Clinical Assistant Professor.
B.S., Ouachita Baptist University, 1964; M.D., University of Arkansas, 1968. (1978)

Robert A. Gardner,* Ph.D., Professor of Psychology.
B.A., New York University, 1950; A.M., Columbia University, 1951; Ph.D., Northwestern University, 1954. (1963-1968)

Duane L. Garner,* Ph.D., Professor of Animal Science.
B.S., Cal State University Fresno, 1964; M.S., Washington State University, 1967; Ph.D., 1969. (1985)

Wendy Garner, Ph.D., Assistant Professor of Speech Pathology and Audiology.
Ph.D., Wichita State University, 1985. (1984)

James R. Garrett,* Ph.D., Associate Professor of Agricultural Economics.
B.S., New Mexico State University, 1958; M.S., 1961; Ph.D., Washington State University, 1967. (1966-1971)

Larry J. Garside, M.S., Economic Geologist, Nevada Bureau of Mines and Geology.
B.S., Iowa State University, 1965; M.S., University of Nevada, Reno, 1968. (1968-1976)

Thomas Gates, B.S., Assistant Women's Basketball Coach.
B.S., Texas Wesleyan College, 1985. (1989)

Larry M. Gentilello, M.D., Assistant Professor of Surgery.
M.D., Albert Einstein Medical School, 1982. (1989)

Bernard R. Gerard, Jr., M.D., Clinical Assistant Professor, Family Medicine.
B.A., Walla Walla College, 1949; M.D., Loma Linda University, 1955. (1987)

William T. Gerthoffer,* Ph.D., Associate Professor of Pharmacology.
B.S., Waynesburg College, 1974; Ph.D., West Virginia University, 1978. (1982-1987)

*Graduate faculty.

Alan W. Gertler, Ph.D., Assistant Research Professor, DRI
B.S., State University of New York, Albany, 1974; Ph.D., Univerity of California at Los Angeles, 1979. (1979)

Kyung-Il Ghymn,* Ph.D., Professor of Managerial Sciences.
B.A., Kyung Hee University, 1963; M.B.A., University of Hawaii, 1970; Ph.D., University of Pittsburgh, 1974. (1978-1984)

James H. Giacomazzi, M.Ed., Head Volleyball Coach.
B.A., Azusa Pacific University, 1981; M.Ed., 1985. (1989)

Gerald F. Gifford,* Ph.D., Professor of Range, Wildlife and Forestry.
B.S., Utah State University, 1962; M.S., 1964; Ph.D., 1968. (1984)

DeWayne Gilbert, Ph.D., Professor of Plant, Soil, and Water Science.
B.S., Iowa State University, 1950; M.S., 1956; Ph.D., 1959. (1976-1981)

Laurence C. Gilbert, Ph.D., Media Resources Coordinator.
B.A., College of William and Mary, 1973; Ed.S., Indiana University, Bloomington, 1976; Ph.D., 1983. (1984)

Roy Gilbreath, M.D., Clinical Assistant Professor, Internal Medicine.
B.S., University of Florida, 1975; M.D., University of Miami School of Medicine, 1979. (1987)

Gerald P. Ginsburg,* Ph.D., Professor of Psychology.
B.S., University of Illinois, 1958; Ph.D., University of Michigan, 1964. (1963-1973)

Linda D. Glaser, M.Ed., Area Specialist, Cooperative Extension Service.
B.S., University of Nevada, Reno, 1971; M.Ed., 1983. (1985)

Michael Glass, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Southern California, 1978. (1984)

Eugene Glick, M.D., Clinical Assistant Professor.
B.S., Ursinus College, 1951; M.D., Jefferson Medical College, 1956; M.P.H., University of California, Berkeley, 1972. (1978)

Marvin A. Glovinsky, Ph.D., Clinical Assistant Professor of Psychiatry.
B.A., University of New York, 1961; M.S., 1964; Ph.D., University of Utah, 1972. (1988)

Marilyn J. Goad, M.S., Area Extension Agent, Cooperative Extension Service.
B.S., Texas A & I University, 1973; M.S., University of Nevada, Reno, 1974. (1975-1983)

Glenda Gobelman, M.S.N., Adjunct Instructor of Nursing.
M.S.N., University of Colorado, 1982. (1985)

David B. Goddard, PA-C, CCP, Clinica Assistant of Surgery.
A.S., Yuba Junior College, 1971; B.S., Brigham Young University, 1974; B.H.S., Duke University, 1976; P.A.C., 1976. (1988)

Peter J. Goin, M.F.A., Associate Professor of Art.
B.A., Hamline University, 1973; M.A., University of Iowa, Iowa City, 1975; M.F.A., 1976. (1984-1987)

Leslie L. Golberg, M.S., Lecturer in Speech Pathology and Audiology.
B.A., University of Maryland, 1976; M.S., University of Nevada, Reno, 1977. (1978-1980)

Myron J. Gomez, M.D., Clinical Assistant Professor of Surgery.
B.S., University of Nevada, Reno, 1975; M.D., Tufts University, 1980. (1988)

Alice M. Good, M.A., Communications Coordinator, College of Agriculture.
B.S., University of California, Los Angeles, 1961; M.A., University of Nevada, Reno, 1978. (1983)

Philip H. Goodman, M.D., Associate Professor of Internal Medicine.
B.A., University of California, Irvine, 1976; B.S., 1976; M.D., 1980. (1988)

Leah M. Gorbet, M.B.A., Director of Budget and Personnel, School of Medicine.
B.S., California State University, Sacramento, 1976; M.B.A., University of Nevada, Reno, 1982. (1978)

Faramarz Gordaninejad,* Ph.D., Associate Professor of Mechanical Engineering.
B.S., University of Tehran, 1977; M.S., University of Oklahoma, 1980; Ph.D., 1983. (1984-1989)

C. Thomas Gott, M.D., Ph.D., Clinical Assistant Professor.
B.S., Lehigh University, 1959; B.S., 1960; Ph.D., University of Rochester, 1969; M.D., 1970. (1982)

Arthur Gould, M.S., Film and T.V. Specialist, College of Agriculture.
A.B., Los Angeles State College, 1950; M.S., University of California, Los Angeles, 1951. (1972-1977)

JoAnn Gould, R.N., Clinical Instructor of Psychiatry and Behavioral Sciences. (1986)

Stephen G. Grace, M.D., Clinical Assistant Professor.
B.A., University of Oregon, 1966; M.D., Baylor College of Medicine, 1970. (1980)

Alan J. Grant, M.S.E.E., Adjunct Professor of Managerial Sciences. (1986)

Peter L. Graze, M.D., Associate Professor of Internal Medicine.
B.S., Tufts University, 1967; M.D., Harvard University, 1971. (1979)

Monica M. Grecu, Ph.D., Writing Specialist.
Ph.D., Babes-Bolyai University, 1977. (1984)

G. Sheldon Green, M.D., Clinical Associate Professor.
B.A., Willamette University, 1952; M.D., University of Oregon, 1959. (1984)

Shirley Green, M.S., Clinical Adjunct Instructor of Nursing.
B.S.N., University of Illinois, Chicago, 1973; M.S., De Paul University, 1975. (1984)

George H. Greenberg, M.D., Clinical Assistant Professor.
A.B., Columbia University, 1961; M.D., Chicago Medical School, 1966. (1975)

John Greene, M.S.W., Station Manager-KUNR.
B.S., University of Maryland, 1975; M.S.W., University of Utah, 1979. (1989)

Arnold H. Greenhouse, M.D., Professor and Director, Center for Getiatric Education and Research.
B.A., University of Kansas, 1948; M.D., 1951. (1983)

Louise Greenhouse, R.N., Nurse Administrator in the Medical School.
R.N., University of Kansas, 1953. (1984)

E. James Greenwald, M.D., Clinical Associate Professor.
B.S., University of Illinois, 1965; M.D., Northwestern University, 1969. (1978-1981)

Ronald D. Greenwood, M.D., Clinical Associate Professor.
B.S., University of Arkansas, 1965; M.D., Northwestern University, 1969. (1982)

Richard W. Grefrath, M.L.S., Librarian.
B.A., New York University, 1968; M.A., Temple University, 1971; M.L.S., University of Maryland, 1972. (1978-1989)

N. Janine Gregg, B.S., Research Associate in Microbiology. (1984)
B.S., University of Nevada, Reno, 1973. (1984)

Miles Greiner, Ph.D., Assistant Professor of Mechanical Engineering.
B.S., University of California, Berkeley, 1979; S.M., Massachusetts Institute of Technology, 1982; Ph.D., 1986. (1986)

Francis Paul Grenn, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., Boston University, 1962; M.D., Georgetown University, 1966. (1989)

Cynthia A. Griffin, M.S.W., Clinical Instructor of Psychiatry and Behavioral Sciences.
A.B., Indiana University, Bloomington, 1971; M.S.W., Indiana University Graduate School of Social Service, Indianapolis, 1974. (1984)

George T. Grigsby, Jr., M.D., Clinical Assistant Professor of Internal Medicine.
A.B., University of North Catolina, 1962; M.D., 1966. (1988)

Richard M. Groom, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
B.S., Brigham Young University, 1980; M.D., University of Washington, 1984. (1988)

David T. Grove, D.M.D., Clinical Assistant Professor.
A.B., Humboldt State College, 1965; D.M.D., University of Louisville, 1969; M.S., St. Louis University, 1971; M.S.Ed., University of Southern California, 1976. (1982)

Fritz H. Grupe, Ed.D., Assistant Professor of Computer Science.
B.S., State University of New York at New Paltz, 1961; M.S.Ed., 1964; Ed.D., State University of New York at Albany, 1970. (1982)

William P. Gruzenski, M.D., Clinical Associate Professor of Psychiatry and Behavioral Sciences.
B.A., Kings College, Wilkes-Barre, 1963; M.S., University of Ottawa, 1964; M.D., 1970. (1986)

Alan A. Gubanich, Ph.D., Associate Professor of Biology.
A.B., Wilkes College, 1964; M.S., University of Arizona, 1966; Ph.D., 1970. (1970-1978)

Raymond J. Gude, M.A., International Student Adviser.
B.A., University of Missouri-St. Louis, 1976; M.A., University of Chicago, 1979. (1986)

Sandra M. Sagers Guidry, Financial Aid Counselor. (1984)

Johannes C. Guitjens,* Ph.D., Professor of Irrigation Engineering, College of Agriculture.
B.S.A., University of British Columbia, 1961; M.S., University of California, Davis, 1964; Ph.D., 1968. (1967-1978)

Michael Gummer, M.B., B.Ch., B.A.O., Clinical Assistant Professor.
M.B., B.Ch., B.A.O., University of Dublin, 1963; M.A., 1965. (1982)

Barbara A. Gunn,* Ph.D., Professor of Human Development and Family Sciences.
B.S., University of Oregon, 1948; M.A., University of California, Los Angeles, 1956; Ph.D., Stanford University, 1960. (1973-1982)

Stephan Gurovsky, M.D., Clinical Assistant Professor.
M.D., Bulgaria Medical School, 1950. (1984)

Martin E. Gutride, M.P.S., Clinical Associate Professor.
B.A., New York University, 1965; M.A., Syracuse University, 1968; Ph.D., 1970; M.P.S., Long Island University, 1978. (1980)

Deborah L. Guy, B.S., Clinical Instructor, Surgery.
B.S., Ohio State University, School of Anesthesia, Columbus, 1965. (1987)

Byron C. Gwinn, M.D., Clinical Associate Professor of Surgery.
B.A., Duke University, 1955; M.D., George Washington University, 1962. (1988)

Husain F. Haddawy,* Ph.D., Professor of English and Comparative Literature.
B.A., University of Maryland, 1951; M.A., Cornell University, 1954; Ph.D., 1962. (1969-1985)

Thomas Haga, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of Virginia at Charlottsville, 1973; M.D., University of Tennessee at Memphis, 1986. (1989)

Osama Haikal, M.D., Clinical Assistant Professor of Internal Medicine. (1986)

*Graduate faculty.

Ely Haimowitz,* M.S., Associate Professor of Music.
B.M., Rollins College, 1940; B.S., Juilliard School of Music, 1951; M.S., 1952. (1965-1967)

Tom Halasy, M.D., Clinical Assistant Professor.
B.A., University of Washington, 1947; M.D., 1953. (1984)

Virginia A. Haldeman,* Ed.D., Associate Professor of Human Development and Family Sciences.
B.S., University of Washington, 1955; M.S., Utah State University, 1975; Ed.D., 1980. (1985)

Mark R. Hall,* Ph.D., Associate Professor of Microbiology.
B.S., Western Michigan University, 1964; M.S., Wayne State University, 1968; Ph.D., 1971. (1977)

Stephen W. Hall, M.D., Professor of Internal Medicine and Director, Division of Hematology and Oncology.
B.S., Arizona State University, 1967; M.D., University of Arizona, 1971. (1978)

Thomas E. Hall, M.D., Clinical Associate Professor.
M.D., University of Southern California, 1956. (1976)

Wesley W. Hall, M.D., Clinical Associate Professor of Surgery.
B.S., University of Nevada, Reno, 1960; M.D., University of Mississippi, 1964. (1988)

John Hallett,* Ph.D., Research Professor, DRI and Department of Physics.
B.Sc., University of Bristol, England, 1953; Ph.D., Imperial College, University of London, 1958. (1979)

Harold E. Halvorson, M.D., Clinical Associate Professor.
B.S., South Dakota State University, 1951; M.D., Temple University, 1955. (1971)

Maribeth Hamby, M.A., Adjunct Lecturer in Anthropology. (1986)

John F. Hamele, B.S.S.W., Substance Abuse Program Coordinator, Sierra Nevada Job Corps Center.
B.S.S.W., State University of New York at Buffalo, 1975. (1987)

Michael E. Hamende, M.P.A., Resident Director, Residential Life/Housing.
B.A., California State University-Long Beach, 1985; M.P.A., 1987. (1989)

Richard L. Hamilton, D.D.S., Clinical Assistant Professor. (1984)

John W. Hamlin, M.D., Clinical Professor.
A.B., University of California, Berkeley, 1938; M.D., University of California, San Francisco, 1942. (1975-1979)

Ron Hamman, B.A., Clinical Instructor of Clinical Laboratory Science.
B.A., University of California, Davis, 1972. (1984)

Lonnie N. Hammargren, M.D., Clinical Associate Professor.
B.A., University of Minnesota, 1958; M.A., 1960; B.M., 1964; M.D., 1964, M.S., 1974. (1976)

Robert W. Hammond, M.S., Extension Agent in Charge, Cooperative Extension Service.
B.S., Humboldt State College, 1968; M.S., Oklahoma State University, 1977. (1978)

Darrel D. Handke, M.D., Clinical Assistant Professor.
M.D., University of Nebraska, 1972. (1982)

Rodney G. Handsfield, M.D., Clinical Assistant Professor, Internal Medicine.
A.A., Fullerton Junior College, 1969; B.A., California State University, Fullerton, 1974; M.D., Autonomous University of Guadalajara, Jalisco, Mexico, 1979. (1987)

Donald R. Hanks,* D.V.M., Interim Associate Dean for Resident Instruction, College of Agriculture and Associate Professor of Veterinary Medicine.
B.S., Utah State University, 1967; D.V.M., Washington State University, 1970. (1976-1982)

David A. Hansen, Ed.D., Director, Enrollment Planning and New Student Programs.
B.A., Slippery Rock State College, 1971; M.Ed., 1973; Ed.D., University of Nevada, Reno, 1985. (1978-1980)

Donald L. Hardesty,* Ph.D., Professor of Anthropology.
A.B., University of Kentucky, 1964; M.A., University of Oregon, 1967; Ph.D., 1972. (1968-1980)

Wayne C. Hardwick, M.D., Clinical Assistant Professor.
B.Ch.E., Georgia Institute of Technology, 1967; M.D., Emory University, 1975. (1980)

Joseph P. Hardy, M.D., Clinical Associate Professor.
B.S., University of Nevada, Reno, 1973; M.D., Washington University, 1976. (1984)

Mildred D. Harmon, M.S.N., Assistant Professor of Nursing.
B.S.Ed., University of Nevada, Reno, 1972; M.S.N., 1975. (1975-1978)

Robert L. Harmon, M.B.A., Director, Business Affairs.
B.S., California State University, Chico, 1973; M.B.A., 1984. (1986)

Beverly R. Harn, M.D., Clinical Assistant Professor.
B.S., Portland State University, 1975; M.D., University of Oregon, 1979. (1984)

Joe G. Harper,* Ph.D., Assistant Professor of Agricultural Education and Communications.
B.S., Virginia Polytechnic Institute/State University, 1973; M.Ed., Pennsylvania State University, 1980; Ph.D., Ohio State University, 1983. (1984)

Pharbus Harper, M.Ed., Associate Athletic Director.
B.A., University of Nevada, Reno, 1971; M.Ed., 1983. (1984)

Rodney E. Harrington,* Ph.D., Professor of Biochemistry.
A.B., University of South Dakota, 1953; Ph.D., University of Washington, 1960. (1972)

Thomas L. Harrington,* Ph.D., Professor of Psychology.
B.A., University of Montana, 1959; M.S., University of Oregon, 1964; Ph.D., 1967. (1969-1983)

John B. Harris, M.D., Clinical Associate Professor.
B.A., University of Nevada, Reno, 1954; M.D., University of Southern California, 1962. (1980)

Lauran D. Harris, M.D., Clinical Associate Professor.
B.S., Baylor University, 1944; M.D., University of Texas Health Science Center at Dallas, 1951. (1980)

Reta L. Harris, M.D., Assistant Professor of Psychiatry and Behavioral Sciences.
M.D., University of Alabama at Birmingham, 1977. (1987)

Thomas R. Harris,* Ph.D., Associate Professor of Agricultural Economics.
B.B.A., University of Texas at Arlington, 1970; M.S., Texas Tech University, 1972; Ph.D., Oklahoma State University, 1981. (1981-1985)

Thomas C. Harrison, Ph.D., Assistant Professor of Counseling and Educational Psychology.
M.Ed., University of Florida, 1979; Ed.S., 1979; Ph.D., 1983. (1988)

William J. Harrison, M.D., Clinical Assistant Professor.
B.S., Southeastern Oklahoma State College, 1967; B.A., 1968; M.D., University of Texas Medical Branch, 1976. (1982)

Francis X. Hartigan,* Ph.D., Honors Program Director, Professor of History.
A.B., Providence College, 1965; M.A., University of Wisconsin-Madison, 1966; Ph.D., 1970. (1970-1983)

David L. Harvey,* Ph.D., Associate Professor of Sociology.
A.B., University of Illinois, 1961; A.M., 1966; Ph.D., 1970. (1968-1973)

Robert D. Harvey,* Ph.D., Associate Professor of English and American Literature.
B.S., Northwestern University, 1948; A.M., University of Chicago, 1949; Ph.D., 1965. (1962-1970)

Robert D. Harvey, Ph.D., Research Assistant Professor of Physiology.
B.S., Drake University, 1982; Ph.D., Northwestern University, 1987. (1989)

Douglas Hasslen, Ph.D., Adjunct Faculty in Agricultural Economics. (1986)

J. Christopher Hastings, M.D., Clinical Associate Professor.
B.S., University of Illinois, Urbana-Champaign, 1964; M.D., University of Illinois at the Medical Center, 1968. (1978)

Brian W. Hatoff, M.A., Adjunct Lecturer in Anthropology.
B.A., University of California, Davis, 1971; M.A., 1974. (1980)

Diane C. Hatton, D.S.N., Assistant Professor of Nursing.
B.S., University of San Francisco, 1969; M.S., University of Nevada, Reno, 1975; D.S.N., University of California, San Francisco, 1989. (1985)

Sheldon Haun, M.F.A., Stage Manager, Lawlor Events Center.
B.A., Whittier College, 1979; M.F.A., University of Idaho, 1986. (1989)

Gary J. Hausladen,* Ph.D., Assistant Professor of Geography.
B.A., Stanford University, 1969; M.A., Syracuse University, 1979; Ph.D., 1983. (1987)

Michael J. Havercamp, Ph.D., Assistant Professor of Human Development and Family Sciences.
B.A., University of Detroit, 1972; M.A., University of Chicago, 1977; Ph.D., University of Michigan, 1985. (1987)

Gregory J. Hayes, M.D., Assistant Professor of Health Resources.
B.S., Loyola-Marymount University, 1967; M.D., University of Southern California, 1972. (1989)

Steven Hayes,* Ph.D., Professor of Psychology and Director of Clinical Training.
B.A., Loyola University of Los Angeles, 1970; M.A., West Virginia University, 1973; Ph.D., 1977. (1986)

Gary Haynes,* Ph.D., Associate Professor of Anthropology.
B.A., University of Maryland, 1970; M.A., Catholic University of America, 1978; Ph.D., 1981. (1985-1988)

Thomas Hays, B.S.E., Assistant Track Coach.
B.S.E., University of Kansas, 1989. (1989)

Barbara K.M. Hecht, Ph.D., Clinical Assistant Professor.
B.A., Stanford University, 1960; M.A., 1962; Ph.D., University of Oregon, 1974. (1983)

Frederick Hecht, M.D., Clinical Professor.
B.A., Dartmouth College, 1952; M.D., University of Rochester, 1960. (1983)

Charles R. Heisler,* Ph.D., Professor of Biochemistry.
B.S., Monmouth College, 1948; Ph.D., University of Chicago, 1957. (1965-1973)

Charles N. Held, M.D., Clinical Assistant Professor.
A.B., University of Missouri, 1967; M.D., 1971. (1982)

Yoshiko T. Hendricks, M.L.S., Librarian.
B.A., University of Texas at Austin, 1960; M.L.S., 1970. (1970-1983)

James L. Hendrix,* Ph.D., Professor of Chemical and Metallurgical Engineering and Chemical Engineer, Nevada Mining Analytical Laboratory.
B.S., University of Nebraska-Lincoln, 1966; M.S., 1968; Ph.D., 1969. (1969-1978)

Virginia Henkels, M.S., Clinical Instructor of Nursing.
B.S., Southern Illinois University, 1980; M.S. Rush University, 1982. (1986)

*Graduate faculty.

Michael M. Hennelly, M.D., Assistant Professor of Family and Community Medicine.
B.S., University of Notre Dame, 1969; M.D., University of Missouri, 1973. (1989)

Berch E. Henry,* Ph.D., Assistant Professor of Veterinary Medicine.
M.S., University of Arkansas, 1975; Ph.D., University of Mississippi, 1979. (1984)

Melbourne W. Henry, D.S.W., Associate Professor of Social Work.
M.S.W., Portland State University, 1966; M.P.A., University of Southern California, 1975; D.S.W., 1975. (1989)

H. Hale Henson, M.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
B.S., University of Idaho, 1960; M.D., University of Oregon, 1964. (1983)

Viktoria Hertling, Ph.D., Associate Professor of Foreign Languages and Literature.
B.A., Rhineland Teachers College, 1968; M.A., Southern Methodist University, 1971; Ph.D., University of Wisconsin, 1980. (1984-1987)

Patrick S. Herz, M.D., Clinical Assistant Professor of Surgery.
B.S., University of Nevada-Reno, 1973; M.D., University of Kentucky, 1977. (1988)

Eric B. Herzik, Ph.D., Associate Professor of Political Science.
B.A., University of California at Irvine, 1977; M.A., University of North Carolina, 1979; Ph.D., 1982. (1989)

George H. Hess, M.D., Professor of Family and Community Medicine.
B.S., University of the Pacific, 1964; M.D., University of Washington, 1968. (1988)

Maxine L. Hetherington, M.D., Clinical Assistant Professor of Pediatrics.
B.A., Memphis State University, 1957; M.D., University of Tennessee, 1978. (1989)

David W. Hettich,* Ph.D., Associate Professor of English.
B.S., Creighton University, 1954; M.A., Marquette University, 1956; Ph.D., Wayne State University, 1962. (1961-1967)

Malcolm J. Hibbard, Ph.D., Professor of Geological Sciences.
B.A., Dartmouth College, 1958; M.S., University of Washington, 1960; Ph.D., 1962. (1962-1973)

Adolf E. Hieke,* Ph.D., Associate Professor and Director of English as a Second Language.
B.A., University of Colorado, 1964; M.A., 1967; M.Ph., University of Kansas, 1974; Ph.D., 1980. (1985)

Vaughn Higbee, B.S., Associate County Extension Agent, Cooperative Extension Service.
B.S., College of Southern Utah, 1968. (1985)

Gerald L. Higgins, M.D., Clinical Assistant Professor of Surgery.
M.D., Loyola University, 1962. (1985)

William T. Higgs, M.D., Clinical Assistant Professor of Family and Community Medicine. (1986)

Gregory J. Highison,* Ph.D., Associate Professor of Anatomy.
B.S., Youngstown State University, 1973; Ph.D., Medical College of Ohio at Toledo, 1980. (1981-1985)

Robert D. Highton,* M.A., Associate Professor of Journalism.
B.A., Pennsylvania State College, 1953; M.A., Ohio State University, 1965. (1981)

Martha L. Hildreth,* Ph.D., Associate Professor of History; Clinical Associate Professor of Pathology.
B.A., University of California, Irvine, 1972; M.A., Ecole des Hautes Etudes en Science Sociale, 1977; Ph.D., University of California, Riverside. (1982-1987)

George C. Hill,* Ph.D., Associate Professor of Agricultural Education and Communications.
B.S., University of Idaho, 1972; M.S., 1974; Ph.D., Washington State University, 1982. (1981-1987)

H. Haydon Hill, M.D., Clinical Assistant Professor.
B.S., University of Nevada-Reno, 1972; M.D., University of California Davis, 1976. (1982)

Kenneth R. Hill, M.S., County Extension Agent-in-Charge, Cooperative Extension Service.
B.S., Oregon State College, 1954; M.S., Utah State University, 1972. (1972-1975)

Lisa Hill, B.S., Instructor and Project Nutritionist, Nutrition Education & Research Program
B.S., University of California, Berkeley 1982; (1986)

Jeanne M. Hilton,* Ph.D., Assistant Professor of Human Development and Family Studies.
B.S., California State University, Chico, 1978; M.A., 1982; Ph.D., Oregon State University, Corvallis, 1985. (1985)

Karen L. Hinton, M.S., Extension Agent In Charge — Home Economics, Cooperative Extension.
B.S., Texas Technical University, 1978; M.S., University of Nevada, Reno, 1981. (1981)

Jim Hirschfield, M.F.A., Lecturer in Art.
B.F.A., Kansas City Art Institute, 1976; M.F.A., University of Oregon, 1978. (1986)

Lester Ho, M.D., Clinical Assistant Professor, Obstetrics and Gynecology.
B.A., University of California, Berkeley, 1968; Ph.D., University of Texas, Austin, 1974; M.D., University of Texas Medical School, San Antonio, 1976. (1987)

Thomas E. Hoffer,* Ph.D., Research Professor, DRI and Department of Physics.
B.S., University of Utah, 1950; M.S. 1952; Ph.D., University of Chicago, 1961. (1964)

Delpha Sue Hoffman, M.S., State 4-H Events and Activities Program Manager.
A.A., Blue Mountain Community College, 1973; B.S., Oregon State University, 1975; M.S., University of Nevada, Reno, 1977. (1987)

Piotr Hoffman,* Ph.D., Professor of Philosophy.
M.A., University of Warsaw, 1967; Ph.D., University of Paris, 1970. (1977-1988)

W. Howard Hoffman, M.D., Clinical Assistant Professor.
M.D., University of Texas, Southwestern, 1973. (1984)

David M. Hogle, M.D., Clinical Associate Professor.
B.A., University of California, Los Angeles, 1972; M.D., 1976. (1982)

Dale W. Holcombe,* Ph.D., Assistant Professor of Animal Science.
B.S., Berry College, 1979; M.S., Mississippi State University, 1982; Ph.D., New Mexico State University, 1987. (1988)

David M. Holman, Ph.D., Assistant Professor of Educational Leadership.
B.A., North Dakota State University, 1974; M.S., 1978; Ed.S., 1980; Ph.D., University of Nebraska, 1987. (1985)

Kwang-Soo Hong, M.S., Assistant Professor of Mathematics.
B.S., Seoul National University, 1972; M.S., University of Kansas, 1980; M.S., University of Wisconsin, 1982. (1988)

William Honjas, Research Associate, Seismological Laboratory. (1987)

Thomas K. Hood, M.D., Clinical Associate Professor.
A.B., Pomona College, 1945; M.D., Washington University, 1945. (1979)

Robert C. Hooper,* Ph.D., Associate Professor of Mathematics and Computer Science.
B.A., Johns Hopkins University, 1961; Ph.D., University of Maryland, 1967. (1968-1972)

Elizabeth Anne Hope, M.A., Assistant Director of Athletics.
B.A., Lake Forest University, 1975; M.A., 1978. (1984)

Rodger C. Hopkins, M.A., Clinical Instructor of Psychiatry.
B.A., Bethany Bible College, 1976; M.A., Antioch University, 1980. (1988)

Robert L. Horne, M.D., Clinical Assistant Professor of Psychiatry & Behavioral Sciences.
B.S., Centenary College of Louisiana, 1971; M.D., Washington University, 1975. (1989)

Burton Horowitz, Ph.D., Assistant Professor of Physiology.
B.S., Rutgers University, 1976; M.S., California State University, Long Beach, 1980; Ph.D., University of Southern California, 1985. (1989)

Eugene K. Horsley, M.D., Clinical Assistant Professor, Pediatrics.
B.S., University of Nevada, Reno, 1975; M.D., University of Alabama, Birmingham, 1979. (1987)

Jeffrey Horton, Assistant Football Coach, Intercollegiate Athletics. (1987)

Robert C. Horton, Director, Center for Strategic Materials Research and Policy Study. (1987)

David S. Hoskins, M.D., Clinical Assistant Professor.
B.S., California State College, Los Angeles, 1971; M.P.H., Loma Linda University, 1980; M.D., 1980. (1984)

Thelma M. Hostetter, M.S.N., Assistant Professor of Nursing.
B.S., University of California, Berkeley, 1957; M.S.N., University of Illinois, Chicago, 1969. (1986)

Mary Lou House, M.S., Adjunct Associate Professor of Nursing.
B.S., University of Nebraska, 1956; M.S., University of Colorado, 1962. (1984)

Anne B. Howard,* Ph.D., Professor of English and American Literature.
B.A., University of Colorado, 1949; M.A., University of New Mexico, 1954; Ph.D., 1966. (1963-1985)

Fred E. Howe, B.S., Coordinator, Laboratory Animal Caretaker Training Program and Director of University Animal Care Service, Sierra Nevada Job Corps Center.
B.S., Michigan State College, 1952. (1981)

Lillian L. Howe, R.N., Nursing Assistant Instructor, Sierra Nevada Job Corps Center.
R.N., F.W. Sparrow Hospital, 1955. (1983)

Joseph E. Howland,* Ph.D., Professor of Journalism.
B.S., Rhode Island State College, 1940; M.S., Michigan State College, 1942; Ph.D., Cornell University, 1945. (1969-1979)

Jerry A. Howle, M.D., Clinical Associate Professor.
B.S., Furman University, 1967; M.D., Medical University of South Carolina, 1973; Ph.D., 1976. (1976-1982)

Jerome F. Hruska, Jr., Ph.D., Assistant Professor of Internal Medicine.
B.S., University of Chicago, 1964; M.D., 1970; Ph.D., 1970. (1984)

Liang-Chi Hsu,* Ph.D., Professor of Geology and Mineralogist, Nevada Bureau of Mines and Geology and Department of Geological Sciences.
B.S., National Taiwan University, 1956; M.S., 1961; Ph.D., University of California, Los Angeles, 1966. (1969-1978)

Dorothy Hudig,* Ph.D., Associate Professor of Microbiology and Veterinary Medicine.
Ph.D., University of California, San Diego, 1977. (1984)

*Graduate faculty.

James G. Hudson,* Ph.D., Associate Research Professor, Desert Research Institute and Department of Physics.
B.A., Western Michigan University, 1968; M.S., University of Michigan, 1970; Ph.D., University of Nevada, Reno, 1976. (1976)

Mark G. Hueftle, M.D., Clinical Assistant Professor of Radiology.
B.S., University of Nevada, Reno, 1978; M.D., University of Nevada School of Medicine, 1982. (1989)

Don W. Huggins, M.A., Medical Administrator, Sierra Nevada Job Corps Center.
B.A., Humboldt State University, 1970; M.A., 1972. (1988)

James W. Hulse,* Ph.D., Professor of History.
B.A. in Journalism, University of Nevada, 1952; M.A., 1958; Ph.D., Stanford University, 1962. (1962-1970)

Joseph Hume, M.D., Associate Professor of Physiology.
Ph.D., University of California, San Francisco, 1979. (1987)

Dennis L. Humphrey, B.A., Assistant Controller, Development.
B.A., California State University, Fullerton, 1979. (1986)

Steven B. Humphrey, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of California, Irvine, 1968. (1985)

Harry C. Huneycutt, M.D., Clinical Assistant Professor.
B.A., Virginia Military Institute, 1957; M.D., Duke University, 1961. (1971)

Barbara Hunt, B.S.N., Clinical Instructor of Nursing.
B.S.N., University of New Mexico, 1977. (1986)

Douglas A. Hunter, M.D., Clinical Assistant Professor.
B.S., University of Nebraska, 1956; M.D., Stanford University, 1966. (1979)

Kenneth W. Hunter, M.D., Associate Vice President/Dean of Graduate School.
B.A., Arizona State University, 1972; M.S., 1973; M.D., John Hopkins University, 1977. (1989)

Jean E. Hutchinson, Ph.D., Assistant Professor of Psychology.
B.S., Duke University, 1979; Ph.D., Stanford University, 1984. (1988)

David Hutchison, M.D., Clinical Assistant Professor.
B.S., Columbia University, 1959; M.D., Boston University, 1965. (1983)

Reed Hyde, M.D., Clinical Associate Professor of Surgery.
M.D., McGill University, 1944. (1985)

Dodd D. Hyer, M.D., Clinical Assistant Professor, Department of Surgery, Anesthesiology.
M.D., University of Nevada School of Medicine, Reno, 1983. (1987)

Robert Hylander, M.D., Clinical Assistant Professor of Pediatrics.
M.D., University of Oklahoma, 1979. (1985)

John Iliescu, D.D.S., M.D., Clinical Associate Professor.
B.S., University of Illinois, 1950; D.D.S., 1954; M.D., George Washington University, 1958. (1975-1979)

Richard Ingle, M.D., Clinical Assistant Professor of Family Medicine.
B.S., Warner Pacific College, 1977; M.D., University of Nevada School of Medicine, 1985. (1989)

Richard C. Inskip, M.D., Clinical Assistant Professor.
B.S., Muhlenberg College, 1960; M.D., Temple University, 1964. (1971-1982)

F. Michael Irwin, M.D., Clinical Assistant Professor of Psychiatry.
M.D., University of Louiville, 1966. (1985)

Cynthia C. Irwin-Williams, Co-operating Professor of Anthropology. (1983)

Elie Isaac, D.S., Clinical Assistant Professor.
P.N.S., Cairo University, 1953; M.B., B.Ch., 1960; D.S., 1960. (1978)

Firhaad Ismail, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Cape Town Medical School, South Africa, 1974. (1989)

Michael V. Jackson, M.D., Clinical Assistant Professor.
B.S., Boston College, 1974; M.D., Tufts University, 1978. (1984)

Robert W. Jackson, Ph.D., Area Extension Chairman, Churchill County Cooperative Extension Service.
B.A., University of California at Santa Cruz, 1970; M.S., Purdue University, 1972; Ph.D., 1977. (1988)

Parvin M. Jacobs, M.D., Clinical Assistant Professor.
B.S., Barat College, 1950; M.D., New York Medical College, 1955. (1975)

Theodore Jacobs, M.D., Clinical Professor.
B.S., Rutgers University, 1950; M.D., New York Medical College, 1955. (1975-1981)

William H. Jacobsen, Jr.,* Ph.D., Professor of Linguistics.
A.B., Harvard University, 1953; Ph.D., University of California, Berkeley, 1964. (1965-1974)

Roger L. Jacobson,* Associate Professor of Hydrogeology.
B.A., University of Minnesota-Duluth, 1965; M.A., University of Missouri-Columbia, 1968; Ph.D., Pennsylvania State University, 1973. (1976-1978)

Brenda Jahnke, M.S., Clinical Instructor of Nursing.
B.S.N., California State University, Chico, 1984; M.S., University of Nevada, Reno, 1986. (1986)

Ranjit Jain, M.D., Clinical Assistant Professor.
M.D., Punjab University, 1972. (1984)

John W. James, M.S., Associate Professor of Geography.
A.B., Sacramento State College, 1959; M.S., University of Oregon, 1962. (1973)

Susan D. James, M.D., Assistant Professor, Radiology.
B.A., Duke University, Durham, North Carolina, 1978; M.D., 1981. (1987)

Rebecca A. Jankovich, Ph.D., Clinical Associate and Adjunct Assistant Professor of Psychology.
A.B., University of California, Berkeley, 1970; M.A., University of Nevada, 1972; Ph.D., 1974. (1975-1981)

Catherine E. Jarvis, M.A., Lecturer, Continuing Education.
B.A., University of Delaware, 1978; M.A., University of Wisconsin, 1983. (1988)

Joseph Q. Jarvis, M.D., Clinical Assistant Professor, Family and Community Medicine.
M.D., University of Utah, 1982. (1987)

Laverne Jeanne, Ph.D., Assistant Professor of Anthropology.
B.S., Northern Arizona University, 1978; M.A., University of Arizona, 1971; Ph.D., Massachusetts Institute of Technology, 1978. (1989)

Jim Jeffers, Jr., B.A., Director, Real Estate.
B.A., Sierra Nevada College, 1973. (1982)

Robert D. Jeffers, M.Ed., Director, Employee Relations and Benefits.
B.S. in Bus. Adm., University of Nevada, Reno, 1958; M.Ed., 1970. (1965-1974)

Stephen H. Jenkins,* Ph.D., Associate Professor of Biology.
A.B., Dartmouth College, 1968; A.M., Harvard University, 1972; Ph.D., 1975. (1974-1981)

Stephen J. Jenkins,* Ph.D., Associate Professor of Counseling and Educational Psychology.
B.S., Ball State University, 1976; M.S., Indiana University, Bloomington, 1978; Ph.D., 1982. (1984-1988)

Edwin H. Jensen,* Ph.D., Professor of Plant Science.
B.S., University of Wisconsin-Madison, 1949; M.S., 1950; Ph.D., 1952. (1952-1964)

Paul R. Jensen, M.D., Clinical Professor.
A.B., University of California, Berkeley, 1951; M.D., University of California, San Francisco, 1956. (1979)

Janita Jobe, M.L.I.S., Librarian.
B.S.W., University of Missouri-Columbia, 1979; M.L.I.S., University of Texas at Austin, 1986. (1989)

Kenneth W. Johns,* Ed.D., Professor of Curriculum and Instruction.
B.A., University of Arizona, 1954; M.Ed., 1959; Ed.D., 1966. (1966-1984)

Arthur W. Johnson, Jr., B.M., Director, Fleischmann Planetarium.
B.M., University of Southern California, 1973. (1976-1978)

Bruce P. Johnson,* Ph.D., Professor of Electrical Engineering and Computer Science.
B.S., Bates College, 1960; M.S., University of New Hampshire, 1963; Ph.D., University of Missouri, 1967. (1974-1981)

Charles E. Johnson, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., Southwestern Medical School, 1978. (1985)

David Johnson, M.B., Professor of Psychiatry and Behavioral Sciences.
B.S., University of Newcastle upon Tyne, England, 1965; M.B., 1965. (1986)

David H. Johnson, M.D., Clinical Associate Professor of Family and Community Medicine.
B.A., University of Utah, 1971; M.D., University of Alabama, 1976. (1982)

Dee L. Johnson, Ph.D., Professor of Curriculum and Instruction.
B.A., Brigham Young University, 1964; M.A., 1968; Ph.D., 1972. (1989)

Gary E. Johnson, M.D., Professor of Family and Community Medicine.
B.S., University of Nevada, Reno, 1978; M.D., 1982. (1988)

James L. Johnson, M.D., Clinical Assistant Professor.
B.S., University of Akron, 1973; M.D., Ohio State University, 1977. (1984)

Jay D. Johnson, Ph.D., Assistant Professor of Pediatrics.
B.A., Washburn University of Topeka, 1974; Ph.D., Oklahoma College of Medicine and Surgery, 1978. (1989)

Joseph W. Johnson, M.D., Clinical Assistant Professor of Family and Community Medicine.
B.S., Arkansas State University, 1970; M.D., 1974. (1988)

Keith H. Johnson, B.A., Associate Director, Fleischmann Planetarium.
B.A. Cum Laude, Luther College-Iowa, 1969. (1987)

Michael C. Johnson, M.D., Clinical Assistant Professor.
M.D., Creighton University, 1972. (1978)

Walter K. Johnson,* Ph.D., Associate Professor of Electrical Engineering & Computer Science and Assistant Dean of Academic Affairs (Engineering).
B.Sc., Stanford University, 1971; M.Sc., Drexel University, 1973; Ph.D., 1981. (1985)

Wayne S. Johnson, Ph.D., Assistant Professor of Plant Science.
B.S., Utah State University, 1970; M.S., Michigan State University, 1973; Ph.D., 1979. (1976)

James C. Johnston, M.A., Director of Educational Lab and Field Experience.
B.A., California State University-Stanislaus, 1970; M.A., 1974. (1989)

Stephen G. Jolley, M.D., Clinical Assistant Professor of Surgery.
B.S., University of Utah, 1972; M.D., Washington University, 1976. (1988)

*Graduate faculty.

Michael A. Jonak, M.D., Clinical Assistant Professor of Family and Community Medicine.
B.S., St. Bonaventure University, 1969; M.A., State University of New York, 1971; M.D., Creighton University Medical School-Omaha, 1975. (1988)

Bernard M. Jones, Ph.D., Dean, College of Agriculture, Director of Nevada Cooperative Extension and Nevada Agricultural Experiment Station, and Professor of Animal Science.
B.S., Murray State University, 1956; M.S., University of Kentucky, 1960; Ph.D., 1965. (1982)

Denny A. Jones,* Ph.D., Professor of Chemical and Metallurgical Engineering.
B.S., University of Nevada, Reno; 1960; M.S., University of Arizona, 1962; Ph.D., Rensselaer Polytechnic Institute, 1966. (1979-1984)

Dorothy Jones, A.S., Ward Clerk Instructor, Sierra Nevada Job Corps Center.
A.A., Truckee Meadows Community College, 1973; A.S., 1977. (1987)

Helen Irene Jones, Director Womens Programs. (1987)

J. Kendall Jones, M.D., Clinical Associate Professor.
B.S., University of Massachusetts, 1951; M.D., McGill University, 1956. (1982)

Michael A. Jones, M.D., Clinical Associate Professor.
B.A., University of Colorado, 1970; M.D., State University of New York, Upstate Medical Center, 1974. (1982-1988)

Perry O. Jones,* Ph.D., Professor of Music.
B.A., University of Iowa, 1957; M.A., 1963; Ph.D., 1968. (1978-1980)

Randall K. Jones, M.D., Clinical Instructor of Surgery.
B.A., Weber State College, 1976; M.D., University of Utah, 1981. (1986)

Richard B. Jones, M.S., Economic Geologist, Nevada Bureau of Mines and Geology.
B.A., Fresno State College, 1964; M.S., University of Nevada, Reno, 1972. (1977)

Roger A. Jones, M.D., Clinical Assistant Professor, Surgery.
M.D., Medical College of Wisconsin, 1980. (1987)

Roy G. Jones, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Kansas, 1974. (1985)

Timothy S. Jones, M.A., Associate Director of Alumni Development, Alumni Relations
B.A., Washington State University, 1971; M.A., 1973. (1980)

Frank T. Jordan, M.D., Clinical Associate Professor of Surgery.
B.A., University of Notre Dame, 1967; M.D., New York Medical College, 1972. (1988)

Johannes P. Jorna, M.D., Clinical Assistant Professor.
M.D., University of Groningen, Netherlands, 1959. (1971)

Dan M. Journey, Assistant Professor of Military Science. (1986)

Pablo U. Joya, M.D., Clinical Assistant Professor.
M.D., National University of Mexico, 1969. (1980)

Mark B. Judkins,* Ph.D., Assistant Professor of Animal Science.
B.S., Natural Resource, Humboldt State University, 1979; B.S., Range Management, 1979; M.S., New Mexico State University, 1982; Ph.D., 1984. (1986)

Thomas L. Judy, B.B.A., Assistant Vice President for Finance and Administration and Controller.
B.B.A., University of Alaska, 1968. (1983)

Brian Juell, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Utah, 1979. (1985)

Harry W. Justvig, M.S.A., Assistant Football Coach.
B.S., Kansas State University, 1982; M.S.A., University of Notre Dame, 1986. (1989)

Charles A. Kane, M.D., Clinical Professor of Internal Medicine.
B.S., Harvard University, 1939; M.D., Harvard Medical School, 1943. (1989)

Gary L. Kantor, M.D., Clinical Assistant Professor.
B.A., University of California, Los Angeles, 1960; M.D., 1964. (1976)

John P. Karbens, Ed.D., Associate Professor of Accounting and Computer Information Systems.
A.B., Bradley University, 1963; M.B.A., University of Hawaii, 1969; M.Ed., 1973; Ed.D., 1983. (1985)

Robert Karlin, Ph.D., Assistant Professor of Geologic Sciences.
Ph.D., Oregon State University, 1984. (1988)

Frank R. Kauders, M.D., Assistant Professor of Psychiatry and Behavioral Sciences.
M.D., State University of New York Downstate, 1973. (1985)

Martha K. Kearns, M.A., Lecturer in English.
B.A., University of Arizona, 1971; M.A., University of Nevada, Reno, 1981. (1981)

Kathleen D. Keef,* Ph.D., Assistant Professor of Physiology.
Ph.D., University of California, Los Angeles, 1980. (1987)

Sally S. Kees-Martin, M.S., Associate Professor of Human Development and Family Sciences.
B.S., University of Nevada, Reno, 1967; M.S., 1971. (1967-1978)

John C. Kelly,* Ph.D., Associate Professor of Philosophy.
B.A., College of Wooster, 1956; Ph.D., University of Chicago, 1969. (1973)

Lawrence J. Kelly, M.D., Associate Professor of Obstetrics and Gynecology.
B.M.S., Creighton University, 1956; M.D., 1960. (1979)

Kenneth C. Kemp,* Ph.D., Professor of Chemistry.
B.S., Northwestern University, 1950; Ph.D., Illinois Institute of Technology, 1956. (1955-1974)

William E. Kemp, M.D., Clinical Assistant Professor of Surgery.
B.S., University of South Dakota Medical School, 1954; M.D., University of Illinois College of Medicine, 1956. (1989)

Edward A. Kennard, Ph.D., Adjunct Professor of Anthropology.
A.B., Dartmouth College, 1929; Ph.D., Columbia University, 1936. (1974)

James L. Kenyon, Ph.D., Associate Professor of Physiology.
Ph.D., University of Vermont, 1977. (1987)

Joseph Kerr, B.A., Technical Services Manager, Lawlor Events Center.
B.A., Southern Illinois University, Carbondale, 1981. (1985)

Virginia G. Kersey, Budget Officer. (1983)

Thomas C. Key, M.D., Clinical Associate Professor of Obstetrics and Gynecology.
B.S., University of South Carolina, 1972; M.D., Medical University of South Carolina, 1977. (1986)

Ikramullah Khan, B.S., Clinical Assistant Professor.
M.B., B.S., Karachi University, 1972. (1979)

James R. Kidder, M.A., Director of Planning, Budget and Analysis.
B.A., University of California, Berkeley, 1957; M.A., 1971. (1983)

Wendy K. Kiehn, M.S., Assistant Professor of Clinical Laboratory Science.
B.S., University of Michigan-Ann Arbor, 1964; M.S., University of Arizona, 1967. (1976-1981)

Grant T. Kien, M.D., Clinical Assistant Professor.
B.S., Duke University, 1964; M.D., University of Cincinnati, 1968. (1979)

Prasad V. Kilari, Ph.D., Assistant Professor of Accounting/Computer Information.
B.T., University of Madras, 1973; M.B.A., University of Wisconsin, 1979; Ph.D., 1989. (1989)

Glenna Kindberg, M.A., Area Extension Specialist, Cooperative Extension Service.
B.S., Northern Arizona University, 1975; M.A., 1979. (1987)

Michelle Kinder, Master Teacher, Child and Family Center. (1987)

Barbara A. King, M.S., Coordinator Tutorial Programs.
B.S., Boston College, 1963; M.S., University of Florida, Gainesville, 1979. (1984)

Robert T. King, Ph.D., Head, Oral History Program.
B.A., University of Florida, 1971; M.A.T., 1973; Ph.D., 1978. (1983)

Ardis Kinney, M.S., Clinical Instructor of Nursing.
B.S.N., Brigham Young University, 1968; M.S., University of Nevada, Reno, 1986. (1986)

Lawrence M. Kirk, B.S., Broadcast Editor, Agricultural Education and Communications.
B.S., Colorado Agricultural and Mechanical College, 1952. (1965-1974)

Jeffrey W. Klages, B.S., Educational Resources Coordinator, Sierra Nevada Job Corps Center.
B.A., Washington State University, 1977; B.S., 1978. (1989)

Harold Klieforth, M.A., Adjunct Associate Professor of Geography.
B.A., University of California, Los Angeles, 1949; M.A., 1951.

John A. Kleppe,* Ph.D., Professor of Electrical Engineering, Engineering Research and Development Center.
B.S., University of Nevada, Reno, 1961; M.S., 1967; Ph.D., University of California, Davis, 1970. (1969-1979)

James K. Kliwer,* Ph.D., Professor of Physics.
B.S., University of Colorado, 1957; M.S., 1959; Ph.D., 1963. (1963-1975)

Craig W. Klose, M.D., Clinical Assistant Professor, Obstetrics and Gynecology.
B.A., University of Nevada, Reno, 1978; M.D., University of Nevada School of Medicine, 1982. (1987)

Paul A. Knapp, Ph.D., Assistant Professor of Geography.
B.A., University of Colorado, 1983; M.A., University of Arizona, 1985; Ph.D., University of Georgia, 1989. (1989)

MacGregor Q. Kniseley, M.Ed., Adjunct Instructor.
B.A., Earlham College, 1974; M.Ed., University of New Hampshire, 1978. (1978)

Paul W. Knoop, M.D., Clinical Assistant Professor.
M.D., University of Missouri, 1962. (1978)

Harris W. Knudson, M.D., Clinical Associate Professor.
B.S., University of Minnesota, 1953; M.D., 1955. (1975)

Victor K. Knutzen, M.D., Clinical Associate Professor.
M.B.Ch.B., University of Cape Town, 1966; M.R.C.O.G., Royal College of Obstetrics, Gynecology, 1971; F.R.C.S., Royal College of Surgeons, 1973; M.D., University of Cape Town, 1975. (1979)

Catherine A. Kogut, P.N.P., Clinical Assistant Professor, Pediatrics.
B.S., Western Connecticut State University, Danbury, 1981; M.S., University of Virginia, Charlottesville, 1984, P.N.P., 1985. (1987)

*Graduate faculty

Young O. Koh, Ph.D., Cooperating Professor of Sociology.
B.S., University of California, Davis, 1959; M.A., Brigham Young University, 1961; Ph.D., Cornell University, 1967. (1984)

Stephen Kollins, M.D., Clinical Assistant Professor.
B.A., University of Minnesota, 1964; M.S., Rutgers University, 1965; M.D., University of Cincinnati, 1969. (1981)

Edward H. Kopf, M.D., Clinical Assistant Professor.
B.A., University of Buffalo, 1951; M.D., 1955. (1982)

Mark D. Kozar, M.D., Clinical Assistant Professor of Surgery. (1986)

Thomas R. Kozel,* Ph.D., Professor of Microbiology.
B.A., University of Iowa, 1967; M.S., 1969; Ph.D., 1971. (1971-1984)

Marlene Kramer,* Ph.D., Professor of Nursing.
M.S., Western Reserve University, 1958; Ph.D., Stanford University, 1966. (1987)

Terrill J. Kramer,* Ph.D., Associate Professor of Geography.
B.A., Valparaiso University, 1965; A.M., University of Illinois, 1967; Ph.D., 1973. (1968-1982)

Sydney D. Krampitz,* Ph.D., Dean and Professor of Nursing.
B.S.N., Suny at Buffalo; M.S., St. Xavier College, 1969; Ph.D., University of Chicago, 1978. (1989)

Steven E. Krause, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of South Dakota, 1969; M.D., Vanderbilt University, 1977. (1988)

Leonard Kreisler, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of Vermont, 1957. (1985)

Richard E. Kremp, M.D., Clinical Assistant Professor.
A.B., Indiana University, 1960; M.D., 1963. (1976)

Peter A. Krenkel,* Ph.D., Professor of Civil Engineering.
B.S., University of California, Berkeley, 1956; M.S., 1958; Ph.D., 1960. (1982)

Laurel D. Krewson, M.Ed., Instructor, Clinical Laboratory Science.
B.S., Carroll College, 1974; M.Ed., Washington University, 1989. (1989)

Todd Krieger, M.Ed., Resident Director of Manzanita and Juniper Halls.
B.A., Western Washington State College, 1980; M.Ed., Oregon State University, 1985. (1985)

Kristina B. Kruse, B.S., Lecturer, Biology.
B.S., Summa Cum Laude, Metropolitan State College, 1986. (1987)

Leslie J. Krysl,* Ph.D., Assistant Professor of Animal Science.
B.S., Texas Tech University, 1977; M.S., 1979; Ph.D., New Mexico State University, 1986. (1986)

Alexander Anthony Kumjian, Ph.D., Assistant Professor of Mathematics.
M.A., University of California, Berkeley, 1976; Ph.D., 1980. (1987)

Scott W. Kunkel, M.S., Assistant Professor of Managerial Sciences.
B.B.A., Memphis State University, 1974; M.S., 1979. (1988)

John P. Kurlinski, M.D., Assistant Professor of Pediatrics and Obstetrics and Gynecology.
M.D., John Hopkins University, 1974. (1985)

Debra M. Kurth, M.A., Nevada Newspaper Project Librarian.
B.A., University of Wisconsin-Madison, 1982; M.A., 1983. (1986)

Kenneth Kurtz, M.D., Associate Professor of Internal Medicine.
B.A., Williams College, 1966; M.D., Cornell University Medical College, 1970. (1978-1983)

William G. Kvasnicka, D.V.M., Assistant Professor of Veterinary Medicine.
B.S., Kansas State University, 1952; D.V.M., 1956. (1985)

Carol Lacey, B.S.N., Clinical Instructor of Nursing.
B.S.N., University of Nevada, Reno, 1977. (1986)

Stephen Lafer, Ph.D., Assistant Professor of Curriculum and Instruction.
M.A., Humboldt State University, 1985; Ph.D., The University of Oregon, 1986. (1987)

Lev Lagstein, M.D., Clinical Assistant Professor.
M.D., Hebrew University, 1975. (1981)

Mary M. Lahren, Ph.D., Research Associate of Geological Sciences.
B.S., University of Nevada, Reno, 1983; Ph.D., 1989. (1989)

Diann Laing, Ph.D., Media Services Coordinator, Instructional Media Services.
B.A., California State University at Los Angeles,1964; M.S., University of Washington, 1968; Ph.D., University of Oregon, 1983; M.S., 1985. (1986)

Sam Joseph LaMancusa, M.D., Clinical Assistant Professor.
M.D., University of Buffalo, 1955. (1980)

Jane A. Lamb, Ed.D., Associate Professor of Social Work.
B.A., Southwestern University, 1964; M.S.W., University of North Carolina, 1966; Ed.D., University of Tennessee, 1986. (1985)

David K. Lambert,* M.S., Assistant Professor of Agricultural Economics.
B.A., University of California, Davis, 1974; M.S., 1977. (1984)

Harvey W. Lambert, M.S., Lecturer of Mathematics.
B.A., University of Nevada, Reno, 1964; B.S., 1969; M.S., 1972. (1989)

Myrick E. Land,* M.S., Professor of Journalism, Editor and Publisher of UNR Times.
B.A., University of California, Los Angeles, 1945; M.S., Columbia University, 1946. (1977-1989)

Renee P. Landers, M.S., Resident Director, Residential Life/Housing.
B.A., Elmira College, New York, 1984. M.S., 1988. (1989)

R. Kenneth Landow, M.D., Clinical Assistant Professor.
M.D., University of California, Los Angeles, 1973. (1980)

Curtis A. Langdon, B.A., Adjunct Instructor.
B.A., California State University, Northridge, 1976. (1980)

Robert G. Langsner, B.S., Lecturer in Mathematics and Computer Science.
B.S., California Institute of Tech-Pasadena, 1962. (1985)

Joel H. Lanphear, Ph.D., Associate Dean for Academic and Curricular Affairs, Associate Professor of Psychiatry and Behavioral Sciences.
B.A., Western Washington State College, 1964; M.Ed., University of Hawaii, 1969; Ph.D., Michigan State University, 1977. (1982)

Daphne D. LaPointe, M.S., Research Associate and Junior Geologist, Nevada Bureau of Mines and Geology.
A.B., Smith College, 1973; M.S., University of Montana, 1977. (1981)

Claude Lardinois, M.D., Associate Professor Internal Medicine.
M.D., George Washington University, 1975. (1983-1987)

Barbara W. Larsen,* M.S.W., Associate Professor of Social Work.
B.S., University of Utah, 1953; M.S.W., 1955. (1965-1973)

Larry J. Larsen,* Ph.D., Professor of Economics.
B.S., Utah State Agricultural College, 1954; Ph.D., University of Utah, 1967. (1960-1971)

Lawrence T. Larson,* Ph.D., Professor of Economic Geology.
B.S., University of Illinois, 1957; M.S., University of Wisconsin-Madison, 1959; Ph.D., 1962. (1975)

Trudy Larson, M.D., Assistant Professor of Pediatrics.
B.S., University of California, Davis, 1973; M.D., University of California, Irvine, 1977. (1984)

Frederick A. Laubscher, M.D., Clinical Assistant Professor.
B.S., College of the Holy Cross, 1957; M.D., Georgetown University, 1961. (1971-1975)

Robert J. Laughter,* Ph.D., Professor of Recreation, Physical Education, and Dance.
B.S., Oregon State College, 1952; M.A., Ohio State University, 1955; Ph.D., 1963. (1957-1972)

Jack Lazerson, M.D., Professor of Pediatrics
A.B., New York University, 1957; M.D., Chicago Medical School, 1961. (1986)

Kenneth L. Learey, M.D., Clinical Associate Professor of Radiology.
B.A., Ohio Wesleyan University, 1954; M.D., Ohio State University, 1958. (1971-1979)

Clark D. Leedy, Ph.D., Area Extension Specialist, Western Extension Area.
B.S., Purdue University, 1955; M.S., New Mexico State University, 1964; M.A., 1967; Ph.D., Texas A & M University, 1974. (1976)

Bonnie J. Lees, M.D., Clinical Assistant Professor of Pediatrics. (1986)

John A. Legarza, M.Ed., Administrator and Golf Coach, Intercollegiate Athletics.
B.S. in Ed., University of Nevada, Reno, 1958; M.Ed., 1965. (1971)

Lawrence M. Lehrner, M.D., Clinical Associate Professor of Internal Medicine.
B.S, Indiana University-Bloomington, 1971; Ph.D., 1974; M.D., 1975.

Lisa I. Leiden, Ph.D., Medical Education Evaluation Specialist, Office of Evaluation.
Ph.D., University of Texas at Austin, 1981; M.A., 1974; B.A., 1972. (1984)

Harold E. LeMay, Jr.,* Ph.D., Professor of Chemistry.
B.S., Pacific Lutheran University, 1962; M.S., University of Illinois, 1964; Ph.D., 1966. (1966-1979)

John R. Lemieux, M.D., Clinical Assistant Professor.
B.S., McGill University, 1970; M.D., 1974. (1982)

Mary Ellen Lemon, M.L.S., Reference Librarian, Savitt Medical Library.
B.A., University of Idaho, Moscow, 1981; M.L.S., University of Southern California, Los Angeles, 1982. (1986)

Grant F. Leneaux,* Ph.D., Associate Professor of Foreign Languages and Literatures.
B.A., University of Oklahoma, 1964; M.A., 1966; Ph.D., University of Kansas, 1972. (1970-1979)

Peter C. Lent,* Ph.D., Adjunct Professor of Range, Wildlife and Forestry.
B.A., University of Alaska, 1960; Ph.D., University of Alberta, 1964. (1984)

Andrea Lenz, M.M., Assistant Professor of Music.
B.M., University of New Mexico, 1972; M.M., 1975. (1979-1986)

John G. Lenz, M.M., Associate Professor of Music.
B.A., University of Nevada, Reno, 1970; M.M., New England Conservatoty of Music, 1972. (1972-1981)

Carolyn J. Leontos, M.S., Area Extension Specialist, Cooperative Extension Service.
B.S., Mercy College of Detroit, 1968; M.S., Case Western Reserve University, 1970. (1985)

Warren L. Lerude, B.A., Professor of Journalism.
B.A., University of Nevada, Reno, 1971. (1983)

*Graduate faculty.

John Lescott-Leszczynski, Ph.D., Adjunt Assistant Professor of Political Science.
B.A., Warsaw University, 1956; M.A., University of New York, Hunter College; Ph.D., Warsaw University, 1982. (1986)

Maureen Leshendok, B.S., M.L.S., Research Associate, Geological Sciences.
M.L.S., University of Maryland, 1976; B.S., University of Nevada, Reno, 1987. (1987)

William A. Levinger, M.D., Clinical Assistant Professor of Family and Community Medicine. (1986)

Richard J. Lewin, M.D., Clinical Associate Professor.
B.A., University of California at Los Angeles, 1955; M.D., University of Southern California, 1962. (1981)

Calton M. Lewis, M.D., Clinical Associate Professor.
M.D., University of Southern California, 1964. (1979)

Pat Hardy Lewis, Ed.S., Counselor, Counseling Center and Testing Services.
B.A., University of Nevada, Reno, 1969; M.A., 1978; Ed.S., 1982. (1984)

Roger A. Lewis,* Ph.D., Professor of Biochemistry and Biochemist.
B.A., Phillips University, 1963; Ph.D., Oregon State University, 1968. (1969-1982)

Maj. Ronald D. Lewis, Assistant Professor of Military Science. (1989)

Steve Lewis, M.S., Cooperative Extension Agent-in-Charge.
B.S., University of Nevada, Reno, 1978; M.S., 1982. (1984)

Terry R. Lewis, M.D., Clinical Assistant Professor of Surgery.
B.S., University of Nebraska, 1973; M.D., 1979. (1988)

Yvonne E. Lienau, B.A., Teacher Assistant in Research Educational Planning Center.
B.A., California State University, Sacramento, 1983. (1985)

David A. Lightner,* Ph.D., Fuson Professor of Chemistry.
A.B., University of California, Berkeley, 1960; Ph.D., Stanford University, 1964. (1974-1976)

Sven S. Liljeblad, Ph.D., Hilliard Professor of Humanities.
F.K., Lund University, Sweden, 1922; F.L., 1927; Ph.D., 1927. (1966)

Cecile Lindsay,* Ph.D., Associate Professor of Foreign Languages and Literatures.
B.A., California State University at Fullerton, 1973; M.A., University of California, Irvine, 1975; Ph.D., 1980. (1981-1986)

Richard T. Linio, B.A., Executive Director, Lawlor Events Center.
A.B., Morehead State University, 1977. (1986)

Travis B. Linn, M.A., Dean and Professor of Journalism.
B.A., Harvard University, 1961; M.A., North Texas State University, 1975. (1984)

Alexander G. Little, M.D., Professor of Surgery.
A.B., University of North Carolina, 1965; M.D., John Hopkins School of Medicine, Baltimore, 1974. (1988)

Patricia A. Little, M.S.N., Clinical Adjunct Instructor of Nursing.
B.S.N., West Virginia University, 1968; M.S.N., University of Texas, 1974. (1975-1978)

Ralph J. Litton, M.D., Clinical Assistant Professor of Surgery.
M.D., George Washington University, 1955. (1985)

Deborah Loesch-Griffin, Ph.D., Director, Research and Educational Planning Center.
B.S., California State University, Fullerton, 1976; B.S., 1978; Ed.S., Stanford University, 1986; Ph.D., 1987. (1987)

John C. Long, Jr., B.S., Clinical Instructor, Surgery.
B.S., Arizona State University, Tempe, 1971. (1987)

Carl Grant Looney,* Ph.D., Associate Professor of Electrical Engineering and Computer Science.
B.S., University of Nevada, Reno, 1964; M.S., 1968; Ph.D., University of Iowa, 1972. (1984-1985)

Raymond K. Loper, M.S., Associate Professor of Recreation, Physical Education, and Dance.
B.S., Colorado State College of Agricultural and Mechanical Arts, 1950; M.S., University of Oregon, 1960. (1967-1974)

Bertram H. Lubin, M.D., Clinical Professor.
B.A., Washington and Jefferson College, 1960; M.D., University of Pittsburgh, 1964. (1982)

Frank S. Lucash,* Ph.D., Associate Professor of Philosophy.
B.A., Southern Illinois University, 1959; M.S., University of Illinois, 1961; M.A., Southern Illinois University, 1966; Ph.D., 1970. (1968-1980)

Paul Ludlow, M.D., Clinical Assistant Professor.
M.D., George Washington University, 1974. (1984)

Vernon D. Luft, Ph.D., Professor of Curriculum and Instruction.
B.S., Montana State University, 1967; M.S., 1970; Ph.D., Ohio State University, 1974. (1989)

Thomas P. Lugaski, Ph.D., Assistant to Dean and Lecturer in Geology.
B.S., University of Nevada, Reno, 1971; M.S., 1975; Ph.D., 1980. (1984)

Daulatram B. Lund,* D.B.A., Associate Professor of Marketing.
B.S., Madras University, 1970; M.S., T.N. University, 1973; P.M.A., Indian Institute of Management, 1974; M.I.M., American Graduate School of International Management, Arizona, 1975; D.B.A., Texas Tech University, 1982. (1986)

Shen-Yi Luo, Ph.D., Assistant Professor of Mechanical Engineering.
B.S., Tongji University, Shanghai, 1982; M.S., University of Delaware, Newark, 1986; Ph.D., 1988. (1989)

David M. Lupan,* Ph.D., Professor of Microbiology.
B.S., University of Arizona, 1967; M.S., University of Iowa, 1970; Ph.D., 1973. (1973-1989)

Arthur J. Lurie, M.D., Clinical Associate Professor.
B.A., Northwestern University, 1957; M.D., 1960. (1978)

Thomas J. Lynch,* Ph.D., Assistant Professor of Chemistry.
B.A., Marist College, 1977; Ph.D., Texas A & M University, 1981. (1984)

Jon G. Lyon,* Ph.D., Associate Professor of Speech Pathology and Audiology. (1984)

Ronald A. Macauley,* Ph.D., Professor of Mathematics.
B.A., University of British Columbia, 1949; M.A., 1951; Ph.D., University of Illinois, 1955. (1960-1970)

Dennis A. Mackey, M.D., Clinical Associate Professor of Clinical Laboratory Science.
B.S., University of Oregon, 1971; M.D., 1973. (1984)

F. Roy MacKintosh, M.D., Associate Professor of Internal Medicine.
B.S., Massachusetts Institute of Technology, 1964; Ph.D., 1968; M.D., University of Miami, 1976. (1981-1985)

Paul Macura, M.A., Associate Professor of Foreign Languages and Literatures.
B.A., University of Washington, 1955; M.A., 1959. (1963-1984)

Cleborne D. Maddux,* Ph.D., Professor of Curriculum and Instruction.
B.A., University of Arizona, 1966; M.A., Arizona State University, 1970; Ph.D., University of Arizona, 1977. (1988)

Kenneth T. Maehara, Ph.D., Associate Professor and Director of Medical Technology.
B.A., San Jose State College, 1965; M.A., 1969; Ph.D., Washington State University, 1972. (1977-1985)

Mark J. Magney,* Ed.D., Associate Professor of Recreation, and Physical Education, and Dance.
B.S., University of Utah, 1957; Ed.D., Teachers College, Columbia University, 1967. (1966-1972)

Martha B. Mahaffey, Ph.D., Assistant Professor of Psychiatry and Behavioral Sciences.
B.S., University of Santa Clara, 1980; Ph.D., University of Nevada, Reno, 1986. (1988)

Charles G. Mahakian, M.D., Clinical Associate Professor of Psychiatry.
M.D., Washington University School of Medicine, 1966. (1989)

Clare N. Mahannah,* M.S., Professor of Plant Science.
B.S., University of Minnesota, 1958; M.S., University of California, Davis, 1961. (1965-1976)

Kathleen Mahon, M.D., Clinical Associate Professor of Surgery.
M.D., University of New Mexico, 1975. (1985-1988)

Samuel Males III, M.B.A., State Director of Small Business Development Center.
B.S., Westminster College, 1973; M.B.A., University of Nevada, Reno, 1976. (1976-1981)

Jacob Malin, M.D., Clinical Assistant Professor.
B.S., Idaho State University, 1944; M.D., Washington University, 1948. (1981)

Sarah Arpe Malin, M.D., Clinical Assistant Professor.
M.D., Washington University, 1948. (1984)

Jerald D. Malone, M.D., Clinical Assistant Professor of Family and Community Medicine.
B.S., University of Texas-El Paso, 1971; M.D., University of Michigan Medical School-Ann Arbor, 1975. (1988)

Pacita Manalo,* M.D., Associate Professor of Laboratory Medicine.
M.D., University of Santo Tomas, 1955; M.S., Northwestern University, 1963. (1975)

Francesco Manca, Ph.D., Associate Professor of Foreign Languages and Literatures.
Dott., University of Pisa, 1967; Ph.D., University of California, Berkeley, 1980. (1968-1986)

George T. Manilla, M.D., Clinical Assistant Professor.
B.S., University of Utah, 1952; M.S., 1954; M.D., 1961. (1978)

Louise A. Mann, B.S., Fiscal Officer, College of Agriculture, Nevada Cooperative Extension, Nevada Agricultural Experiment Station.
B.S., University of Nevada, Reno, 1979. (1982)

Rita A. Mann, M.A., Manager, Associated Students of the University of Nevada, Reno.
B.A., Marshall University, 1976; M.B.A., 1978; M.A., 1984. (1984)

William F. Mann, M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1967; M.D., University of Colorado, 1970. (1982)

Marjorie Maples, Adjunct Librarian Services Coordinator.

Mary F. Maples,* Ph.D., Professor of Counseling and Educational Psychology
B.S.Ed., State Teachers College at Salem, 1955; M.Ed., State College at Bridgewater, 1961; Ph.D., Oregon State University, 1977. (1977-1981)

David Mar, M.D., Assistant Professor of Family and Community Medicine.
B.A., University of Kansas, 1972; M.D., 1980. (1988)

*Graduate faculty.

Emmanuel A. Maragakis,* Ph.D., Associate Professor of Civil Engineering.
B.S., National Technical University, Athens, 1980; M.S., California Institute of Technology, 1981; Ph.D., 1984. (1984-1989)

William C. Marchant, Ed.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
B.S., Brigham Young University, 1965; M.A., 1968; Ed.D., University of Arizona, 1971. (1989)

Tony L. Marek, M.S., Head Athletic Trainer, Intercollegiate Athletics.
B.S., California State University, Sacramento, 1978; M.S., University of Arizona, 1979. (1987)

Rosalie D. Marinelli, Ed.D., Associate Professor of Health Resources.
B.S., Empire State College, Suny, 1975; M.S., Suny at Stony Brook, 1980; Ed.D., Columbia University, 1988. (1989)

John Marini,* Ph.D., Associate Professor of Political Science.
B.A., San Jose State College, 1966; M.A., Claremont Graduate School, 1971; Ph.D., 1978. (1988)

Nancy L. Markee,* Ph.D., Assistant Professor of Agricultural Economics.
B.S., University of California, Davis, 1972; M.S., 1974; Ph.D., 1986. (1986)

Anthony W. Marlon, M.D., Associate Professor of Internal Medicine.
B.S., Holy Cross College, 1963; M.D., State University of New York at Brooklyn, 1967. (1975)

Gary S. Marrone, M.D., Clinical Assistant Professor of Surgery.
M.D., Georgetown University, 1976. (1985)

John P. Marschall, Ph.D., Special Assistant to Vice President for Student Services and Associate Professor of History.
B.A., Loyola University, 1956; M.A., St. Louis University, 1961; Ph.D., Catholic University of America, 1965. (1969-1971)

David P. Marsh,* Ph.D., Associate Professor of Physics.
B.A., DePauw University, 1957; Ph.D., University of California, Berkeley, 1962. (1963-1969)

Angus Marshall, M.D., Associate Professor of Surgery.
B.S., Lamar University, 1954; M.D., University of Texas Medical School, 1958. (1986)

Craig Marshall, B.S.M.E., Mechanical Engineer of Physical Plant.
B.S.M.E., Univetsity of Nevada, Reno, 1981. (1981)

Patricia Marshall, Ed.D., Assistant Professor of Curriculum & Instruction.
B.A., University of Illinois, 1977; M.A., Roosevelt University, 1981; Ed.D., Oklahoma State University, 1986. (1985)

Ellen Marsten, R.N., Clinical Instructor, Department of Medicine.
Diploma Graduate, Madison General Hospital School of Nursing, Madison, 1962; Chapman College, 1982. (1987)

Algis Martell, M.D., Clinical Assistant Professor.
B.A., Brown University, 1955; M.D., Dalhousie University, 1960. (1978)

Marianne Martin, Associate Director of Publications, Publications and Graphics. (1978)

Edward W. Martinez, Jr., M.A., Associate Professor of Art.
B.A. in Journalism, University of Nevada, 1964; B.S. in Ed., 1965; M.A., University of Iowa, 1969. (1968-1975)

Louis W. Marvick, Ph.D., Assistant Professor of Foreign Languages and Literature.
Ph.D., Columbia University, 1983. (1987)

Firooz Mashhood, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., National University of Iran, 1975. (1989)

Charlotte Mason, Head Women's Basketball Coach, Intercollegiate Athletics. (1988)

Myrna M. Matranga,* Ed.D., Associate Professor of Educational Leadership.
B.A., University of Nevada, Reno, 1971; M.A., 1974; Ed.D., 1983. (1985)

John E. Maxfield,* Ph.D., Associate Professor of Plant Science.
B.S., University of Wyoming, 1961; M.S., 1962; Ph.D., Cornell University, 1967. (1967-1972)

Jerry R. May,* Ph.D., Professor of Psychiatry and Behavioral Sciences and Assistant Dean for Medical Student Admissions.
B.A., Western Washington State College, 1966; M.A., Bowling Green State University, 1968; Ph.D., 1974. (1974-1984)

J. Kent McBeath, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., George Washington University, 1962. (1985)

Thomas A. McCalden, Ph.D., Assistant Professor of Family and Community Medicine.
B.Sc., Queens University, Belfast, 1969; M.S., 1972; Ph.D., University of Witwatersandensis, 1976. (1989)

Laurence R. McClish, M.D., Clinical Associate Professor.
B.A., University of California, Davis, 1962; M.D., University of California, San Francisco, 1966. (1978-1979)

Joseph A. McCloskey, Military Science. (1987)

James C. McCormick, Jr.,* M.A., Professor of Art.
B.A., University of Tulsa, 1958; M.A., 1960. (1960-1972)

Ardythe Arlene McCracken,* Ph.D., Assistant Professor of Biology.
B.S., University of Delaware, 1974; M.S., 1976., Ph.D., 1981. (1986)

Jean E. McCusker, M.D., Clinical Assistant Professor.
B.S., University of Washington, 1969; M.D., University of Oregon, 1974. (1984)

Charles F. McCuskey, Jr., M.D., Clinical Associate Professor.
A.B., Stanford University, 1954; M.D., University of Southern California, 1958. (1975-1979)

Scott J. McDonald, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of Vermont-Burlington, 1973; M.D., 1977. (1988)

Vance D. McDonald, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Michigan, 1963. (1985)

R.L. McElreath, M.D., Clinical Assistant Professor. (1984)

Stephen C. McFarlane,* Ph.D., Professor of Speech Pathology and Audiology.
B.S., Portland State College, 1967; M.S.T., 1969; Ph.D., University of Washington, 1975. (1975-1982)

Terrence G. McGaw, M.S., M.D., Clinical Assistant Professor, Obstetrics and Gynecology.
B.S., University of California, Davis, 1975; M.S., University of Nevada, Reno, 1978; M.D., 1982. (1987)

A. Graydon McGrannahan, III,* D.M.A., Associate Professor of Music and Director of Marching Band.
B.M.E., Murray State University, 1973; M.M., North Texas State University, 1974; D.M.A., 1981. (1975-1983)

Donald B. McGregor, M.D., Associate Professor of Surgery.
B.S., University of Washington, 1970; B.S. in Med., University of South Dakota, 1972; M.D., Medical College of Pennsylvania, 1974. (1982-1985)

Margaret E. McIntosh,* Ph.D., Assistant Professor of Curriculum and Instruction.
B.A., Stephens College, 1977; M.S., North Texas State University, 1982; Ph.D., 1988. (1988)

Denise McKee, M.D., Assistant Professor of Family and Community Medicine.
M.D., University of Nevada School of Medicine, 1981. (1985-1987)

Robert B. McKee, Jr.,* Ph.D., P.E., Professor of Mechanical Engineering.
B.S.M.E., Montana State College, 1948; M.S.M.E., University of Washington, 1952; Ph.D., University of California, Los Angeles, 1967. (1957-1973)

John E. McLennan, M.D., Clinical Assistant Professor of Family Medicine.
M.D., University of Illinois, 1950. (1989)

Mathew James McMahon, D.O., F.A.C.C., Clinical Assistant Professor of Internal Medicine.
B.S., Loras College, 1969; D.O., University of Osteopathic Medicine and Health Sciences, 1974. (1988)

Trevor J. McMinn,* Ph.D., Professor of Mathematics.
B.A., University of Utah, 1942; Ph.D., University of California, Berkeley, 1955. (1963-1969)

Joseph R. McMullen, D.D.S., M.D., Clinical Assistant Professor.
D.D.S., University of the Pacific School of Dentistry, 1974; M.D., University of Vanderbilt, 1977. (1984)

Martha McNabb, M.S.N., Clinical Instructor of Nursing.
B.S.N., University of Nevada, Reno, 1976; M.S.N., 1986. (1986)

Thomas O. McNamara, M.D., Clinical Associate Professor.
M.D., University of Minnesota, 1966. (1982)

David McNeil, Program Coordinator of Field Operations, Fire Protection Training Academy. (1985-1989)

Alison McPherson, Ph.D., Clinical Associate Professor of Pathology and Laboratory Medicine.
B.A., Eastern Washington University, 1965; M.S., 1971; Ph.D., University of Washington, 1976. (1986)

Robert W. Mead,* Ph.D., Professor of Biology.
B.S., Colorado State University, 1962; M.S., 1963; Ph.D., 1968. (1970-1981)

Raymond J. Megquier, D.D.S., Clinical Associate Professor.
B.S., Univetsity of Nevada, 1961; D.D.S., University of the Pacific, 1965; M.S., University of Michigan, 1968. (1975)

Don E. Meier, M.B.A., Plant Engineer, Physical Plant.
B.S., University of California, Los Angeles, 1963; M.B.A., University of Nevada, Reno, 1977. (1985)

Miriella Melara,* Ph.D., Assistant Professor of Foreign Languages and Literatures.
B.A., California State College, Domingues Hills, 1976; M.A., University of California, Irvine, 1978; Ph.D., 1984. (1983)

Taryn-Gisela A. Melkus,* Ph.D., Assistant Professor of Chemical Engineering.
M.S.C.H.E., University of Pittsburgh, 1984; M.S.P.E., 1984; Ph.D., 1986. (1987)

Alice J. Meloy, B.S.N., Clinical Instructor of Nursing.
B.S.N., University of Pittsburgh, 1966; M.S.Ed., Southern Illinois University, 1977. (1980)

Rollan Doyle Melton, B.S., University Marshal.
B.S., University of Nevada, Reno, 1984. (1987)

Carole Mentzer, M.S., Instructor of Nursing.
B.S., University of Nevada, Reno, 1974; M.S., 1985. (1985)

*Graduate faculty.

George E. Merino, M.D., Clinical Instructor.
B.S., Sacred Heart Catholic University, 1965; M.D., 1967; M.S., University of Minnesota, 1976. (1982)

Robert W. Merrill,* Ph.D., Professor of English and American Literature.
B.A., University of Utah, 1966; M.A., University of Chicago, 1967; Ph.D., 1971. (1977-1982)

Hugh G. Merriman, M.D., Clinical Assistant Professor of Surgery.
B.S., Western Washington State College, 1977; M.S., Purdue University, 1979; M.D., University of Washington-Seattle, 1983. (1988)

Robert Lyle Metts, A.B., Assistant Professor of Economics.
A.B., University of California, Berkeley, 1972. (1984)

Joy D. Meyer, B.A., Parent Trainer, Research and Education Planning Center.
B.A., University of Nevada, Reno, 1955. (1987)

Franklin D. Meyers,* Ed.D., Dean, College of Education, Director of Teacher Preparation, and Professor of Counseling and Educational Psychology.
B.S., North Dakota State University, 1956; M.S., 1960; Ed.D., University of Northern Colorado, 1967. (1968-1974)

Roger D. Miercort, M.D., Clinical Associate Professor.
B.A., University of Colorado, 1960; M.D., 1964. (1971-1979)

James K. Mikawa,* Ph.D., Professor of Psychology.
B.A., University of Colorado, 1959; Ph.D., University of Texas at Austin, 1963. (1966-1979)

Alan G. Miller, M.D., Associate Professor of Psychiatry and Behavioral Sciences.
M.D., University of Oregon, 1955. (1985)

Alvin E. Miller, M.S., County Extension Agent-in-Charge, Cooperative Extension Service.
B.S., California State Polytechnic College, 1961; M.S., Oregon State University, 1963. (1972-1982)

Anita Miller, M.A., Head Athletic Trainer-Women, Intercollegiate Athletics.
B.S., Utah State University, 1973; M.A., Brigham Young University, 1978. (1986)

Elwood L. Miller,* Ph.D., Acting Dean, Human and Community Sciences, and Associate Director of Nevada Cooperative Extension.
B.S., Arizona State College, 1963; M.F., Oregon State University, 1965; Ph.D., Michigan State University, 1970. (1970-1982)

Glenn C. Miller,* Ph.D., Professor of Biochemistry.
B.S., University of California, Santa Barbara, 1972; Ph.D., University of California, Davis, 1977. (1978-1989)

Grant D. Miller, M.D., Associate Professor of Psychiatry and Behavioral Sciences, and Family and Community Medicine; Assistant Dean of Student Affairs, School of Medicine.
B.A., University of Minnesota, 1964; M.D., 1968. (1978-1984)

Harvey S. Miller, M.D., Clinical Assistant Professor.
B.S., University of California, Los Angeles, 1960; M.D., 1964. (1980)

Jade A. Miller, D.D.S., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1978; D.D.S., University of the Pacific, 1981. (1984)

Mitchell E. Miller, M.D., Clinical Assistant Professor, Internal Medicine.
B.S., University of Nevada, Reno, 1978; M.D., 1982. (1987)

Watkins W. Miller,* Ph.D., Associate Professor of Plant Science.
B.S., California State Polytechnic College, San Luis Obispo, 1968; Ph.D., University of California, Riverside, 1973. (1973-1978)

John R. Mills,* D.B.A., Associate Professor of Accounting and Computer Information Systems.
B.S., University of Nevada, Reno, 1970; M.B.A., 1974; D.B.A., University of Colorado, 1979. (1982)

Linnis C. Mills, M.S., Area Extension Specialist, Cooperative Extension Service.
B.S., Utah State University, 1966; M.S., 1968. (1981)

Christopher G. Millson, M.D., Clinical Assistant Professor of Surgery.
A.B., Harvard College, 1976; M.D., University of California, San Diego, 1980. (1986)

Patricia K. Miltenberger, Ed.D., Vice President of Student Services.
B.A., University of Nevada, Reno, 1968; M.S., University of Oregon, 1969; Ed.D., University of Nevada, Reno, 1985. (1988)

V. Jerome Mirkil, M.D., Clinical Assistant Professor of Family and Community Medicine. (1986)

Stephen R. Missall, M.D., Associate Professor of Pediatrics.
B.S., Stanford University, 1963; M.D., Baylor College of Medicine, 1967. (1980)

Theodore J. Mitchell,* Ph.D., Associate Professor of Managerial Sciences.
B. Comm., Carleton University, 1974; M.MSc., University of Ottowa, 1975; Ph.D., York University, 1979. (1984)

Kenneth Mizell, B.S., Assistant Football Coach, Intercollegiate Athletics.
B.S., University of Nevada, Reno, 1984. (1986)

Donald A. Molde, M.D., Clinical Associate Professor.
B.A., University of Oregon, 1963; M.S., 1966; M.D., 1966. (1971)

Daniel P. Molden, M.D., Clinical Assistant Professor.
B.S., University of California, San Diego, 1974; M.D., Northwestern University, 1977. (1984)

Ali A. Monibi, M.D., Assistant Professor of Pediatrics.
B.S., Mount Union College, 1964; M.D., University of Geneva, 1971. (1978)

Michael B. Mooney, M.S., Agricultural Economic Extension Specialist, Cooperative Extension Service.
B.B.A., Agricultural and Mechanical College of Texas, 1956; M.S., University of New Hampshire, 1973. (1973-1978)

E. Neal Moore,* Ph.D., Associate Professor of Physics.
B.S., Southern Methodist University, 1957; M.S., Yale University, 1958; Ph.D., 1962. (1962-1967)

Kent A. Moore, M.D., Clinical Assistant Professor.
B.A., Queens College of the City University of New York, 1965; M.D., New York University, 1969. (1979)

Richard T. Moore, M.D., Clinical Assistant Professor.
M.D., Washington University, 1960. (1971-1976)

Bruce T. Moran,* Ph.D., Associate Professor of History.
B.A., University of California, Los Angeles, 1970; M.A., 1971; Ph.D., 1978. (1976-1982)

Rose Moratti, B.S.N., Instructor of Nursing.
B.S.N., Northern Michigan University, 1983. (1985)

Gary D. More, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., St. Lawrence University, 1971; M.D., University of Balogna, 1978. (1988)

Harold G. Morehouse, M.L.S., Director of Libraries.
B.A., University of California, Berkeley, 1955; M.L.S., 1957. (1961-1970)

Robert J. Morelli, M.D., Clinical Assistant Professor.
B.S., University of San Francisco, 1950; M.S., 1952; M.D., Creighton University, 1956. (1975)

Leslie A. Moren, M.D., Clinical Associate Professor of Family and Community Medicine. (1986)

Jack Morgan,* Ph.D., Assistant Professor of Chemistry.
B.A., University of Illinois, 1978; M.A., University of California at Los Angeles, 1980; Ph.D., 1983. (1985)

Robert L. Morris, M.S., Area Extension Specialist in Horticulture. (1984)

Robert J. Morrison, A.M., Professor of Art.
A.B., Fresno State College, 1963; A.M., Stanford University, 1964. (1968-1987)

Eric Mortensen, M.D., Clinical Instructor. (1984)

Stephen A. Moscove,* Ph.D., Professor of Accounting and Computer Information Systems.
B.S., University of Illinois, 1965; M.S., 1966; Ph.D., Oklahoma State University, 1971. (1980)

Steven L. Moss, M.D., Clinical Assistant Professor, Surgery.
B.A., University of California, Los Angeles, 1971; M.D., University of Guadalajara, 1975. (1987)

Donald K. Mousel, M.D., Clinical Professor.
A.B., Whitman College, 1954; M.D., McGill University, 1958. (1971-1979)

Pierre F. Mousset-Jones,* Ph.D., Professor of Mining Engineering.
B.Sc., Royal School of Mines, 1961; M.S., Stanford University, 1967; Ph.D., University of London, 1988. (1968-1989)

Samuel A. Mujica, M.D., Clinical Assistant Professor of Pediatrics.
B.S., University of Puerto Rico, 1977; M.D., University of Puerto Rico School of Medicine, 1981. (1989)

David A. Mulkey, M.D., Clinical Assistant Professor.
B.S., University of Arkansas, 1962; M.D., 1964. (1978)

Thomas N. Mullis, M.D., Clinical Assistant Professor.
M.D., University of Louisville, 1945. (1978)

George P. Mulopulos, M.D., Clinical Assistant Professor of Radiology.
B.S., University of Illinois, 1977; M.D., University of Health Sciences/Chicago Medical School, 1981. (1988)

Gail G. Munk, B.S., County Extension Agent, Cooperative Extension Service.
B.S., University of Nevada, Reno, 1961. (1988)

Syam S. Muntha, M.D., Clinical Assistant Professor of Internal Medicine.
P.U.C., Andhra Loyola College, 1963; M.B.B.S., Andhra Medical College, 1969. (1988)

Donald W. Murphy, M.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
B.S.N., Lakehead University, 1974; M.D., McMaster University, 1979. (1988)

Colleen I. Murray,* Ph.D., Assistant Professor of Human Development and Family Sciences.
B.S., University of Akron, Ohio, 1974; M.A., 1982; Ph.D., Ohio State University, 1984. (1986)

Gordon L. Myer,* Ph.D., Associate Extension Professor of Agricultural Economics and Associate Professor of Cooperative Extension Service.
B.S., North Dakota State University, 1965; M.S., 1972; Ph.D., University of Missouri, 1976. (1976-1983)

Patricia A. Myer, M.S., Area Extension Agent — Home Economics, Cooperative Extension Service.
B.S., Texas A & I University, 1973; M.S., University of Nevada, Reno, 1977. (1977-1985)

*Graduate faculty.

Alan M. Myers, M.D., Assistant Professor of Internal Medicine.
M.D., University of California, Los Angeles, 1972. (1985)

Robert K. Myles, M.D., Clinical Professor.
A.B., Stanford University, 1948; M.A., 1950; M.D., 1955. (1980)

Rangesan Narayanan,* Ph.D., Associate Professor of Agricultural Economics.
B.E., University of Madras, 1971; M.E., Utah State University, 1973; Ph.D., 1976. (1984)

Maud Naroll, Ph.D., Nevada State Demographer.
B.A., SUNY at Buffalo, 1975; Ph.D., Massachusetts Institute of Technology, 1982. (1989)

Martin J. Naughton, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., University of North Dakota School of Medicine, 1977. (1985)

Terrie Nault, M.A., Director, Special Projects.
A.B., University of Detroit, 1969; M.A., University of Nevada, Reno, 1976. (1977-1978)

Sandra Neese, Ph.D., Director, Senator Alan Bible Center for Applied Research, College of Human and Community Sciences.
B.S., University of Arizona, 1963; M.S., Oklahoma State University, 1971; Ph.D., Texas A&M University, 1978. (1979-1984)

Paul A. Neill,* Ph.D., Assistant Professor of Physics.
B.S., The Queen's University of Belfast, 1978; Ph.D., 1984. (1987)

Berger B. Nelson, B.S.E.E., Director of Physical Plant.
B.S.E.E., Stanford University, 1964. (1971-1988)

Dennis Nelson, Adjunct Faculty in Biochemisty. (1986)

John H. Nelson,* Ph.D., Professor of Chemistry.
B.S., University of Utah, 1964; Ph.D., 1968. (1970-1979)

Frank J. Nemec, M.D., Clinical Associate Professor of Internal Medicine.
M.D., University of California, Los Angeles, 1979. (1985-1988)

David E. Newcomb,* Ph.D., Assistant Professor and Research Associate in Civil Engineering.
B.S., Texas A&M University, 1977; M.S., 1979; Ph.D., University of Washington, 1985. (1986)

Myron Lee Newell, M.S., Lecturer in Recreation, Physical Education, and Dance.
B.S., Iowa State University, 1955; M.S., Washington State University, 1963. (1963-1972)

Linda P. Newman, M.L.S., Librarian.
B.A., University of South Carolina, 1964; M.L.S., Indiana University, 1969. (1969-1978)

Michael J. Newmark, M.D., Clinical Assistant Professor.
B.A., Rutgers University, 1968; M.D., University of Pittsburgh, 1972. (1978)

Stephen R. Newmark, M.D., Clinical Associate Professor, Internal Medicine.
A.B., Harvard College, Cambridge, 1965; M.D., University of Pennsylvania, Philadelphia, 1969. (1987)

Beverly A. Neyland, M.D., Clinical Assistant Professor of Pediatrics.
M.D., Meharry Medical College, 1971. (1984)

Stuart T. Nichol,* Ph.D., Associate Professor of Veterinary Medicine.
B.Sc., University of Liverpool, 1976; Ph.D., University of Cambridge, 1980. (1984-1988)

Harry H. Nickle, M.D., Ph.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Connecticut, 1980; Ph.D., University of California, Irvine, 1985. (1989)

Thomas J. Nickles,* Ph.D., Professor of Philosophy.
A.B., University of Illinois, 1965; B.S., 1965; Ph.D., Princeton University, 1969. (1976-1980)

Chris Nicks, M.S.N., Clinical Aduct Instructor of Nursing.
M.S.N., University of Nevada, Reno, 1983. (1985)

Walter Nicks, B.S.E.E., Research Design Engineer in Seismological Laboratory.
B.S.E.E., University of Nevada, Reno, 1983. (1983)

Lowell T. Niebaum, M.D., Clinical Assistant Professor.
B.S., University of Nebraska, Lincoln, 1958; M.D., University of Nebraska, Omaha, 1962. (1984)

Charles E. Nielsen, M.D., Clinical Assistant Professor.
M.D., Loyola University, 1969. (1976)

Earl S. Nielsen, Ph.D., Clinical Assistant Professor of Cranio Facial Pain and Temporo Mandibular Joint Dysfunction Program.
B.S., Brigham Young University, 1971; Ph.D., University of Nevada, Reno, 1979. (1980)

Ronald D. Nielson, M.D., Clinical Assistant Professor of Internal Medicine. (1986)

Terri Nikoliasen, M.T., Clinical Instructor, Clinical Laboratory Science.
B.S., University of Nevada, Reno, 1976; Certification—ASCP, 1976. (1987)

Jerry P. Nims, Ph.D., Clinical Associate Professor.
B.S., University of Utah, 1950; Ph.D., University of Southern California, 1958. (1976)

LuAnn Nissen, M.A., Associate Professor of Interior Design.
B.S., University of Nebraska, 1969; M.A., Iowa State University, 1972. (1973-1983)

Carl R. Nobac, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Missouri, 1977. (1985)

Donald C. Noble,* Ph.D., Professor of Geology.
A.B., Cornell University, 1958; M.S., Stanford University, 1961; Ph.D., 1962. (1980)

Larry N. Noble, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of California, Los Angeles, 1975. (1985)

Trevor Nogueria, M.D., Clinical Associate Professor of Internal Medicine.
M.D., St. John's Medical College, 1974. (1985)

Helen L. Nolte, M.A., Manager of Public Relations and Marketing.
B.A., University of Nevada, Reno, 1958; M.A., 1977. (1984)

David W. Noonan, Ed.D., Associate Professor of Educational Leadership.
B.A., Beloit College, 1970; M.S., Northern Illinois University, 1973; Ed.D., 1984. (1989)

Marie A. Norell, A.B., Program Development Assistant for Psysiology.
A.B., University of Chicago, 1981. (1989)

Daniel A. Norman, M.D., Clinical Assistant Professor.
B.S., Saint Mary's College of California, 1967; M.S., San Diego State College, 1970; M.D., Temple University, 1974. (1982)

Gary M. Norris,* Ph.D., Associate Professor of Civil Engineering.
B.S., University of California, Berkeley, 1969; M.S., 1971; Ph.D., 1977. (1983)

Robert G. Norris, M.S., Area Extension Specialist, Cooperative Extension Service.
A.B., West Liberty State College, 1972; M.S., University of Dayton, 1976. (1983)

Mark A. North, B.S., Associate Director of Operations, Lawlor Events Center.
B.S., Iowa State University, 1979. (1983)

Robert S. Nowak,* Ph.D., Assistant Professor of Range, Wildlife & Forestry.
B.S., University of Minnesota, 1977; M.S., Utah State University, 1980; Ph.D., 1984. (1985)

Gwenyth G. O'Bryan, Ph.D., Adjunct Associate Professor of Psychology.
B.A., Washington State University, 1958; M.Ed., College of William and Mary in Virginia, 1960; Ph.D., University of Nevada, Reno, 1972. (1974-1982)

Oliver Ocskay, Ph.D., Clinical Assistant Professor of Psychiatry.
B.A., University of California-Davis, 1972; M.S., San Diego State University, 1973; M.A., CSPP, San Diego, 1975; Ph.D., California School of Professional, 1977. (1988)

Marcel Odaimi, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., American University of Beirut, 1976; M.D., 1981. (1988)

John N. O'Donnell, M.D., Clinical Assistant Professor.
A.B., John Carroll University, 1968; M.D., Creighton University, 1972. (1984)

Richelle W. O'Driscoll, B.A., Program Development Specialist, Continuing Education.
B.A., University of Nevada, Reno, 1978. (1988)

Carol B. Olmstead, M.A., Lecturer in Mathematics.
B.A., University of Rochester, New York, 1961; M.A., Sonoma State University, Rohnert Park, California, 1974. (1985)

Linda O'Neil, B.S., Master Teacher, Child and Family Center.
B.S., University of Nevada, Reno, 1988. (1988)

William M. O'Neill, M.D., Clinical Professor of Internal Medicine.
M.D., Duke University, 1970. (1985)

Harold S. Orchow, M.D., Clinical Associate Professor.
A.B., Pennsylvania State University, 1953; M.D., Jefferson Medical College of Philadelphia, 1957. (1979-1988)

Daniel L. Orr, D.D.S., Clinical Associate Professor. (1984-1988)

Carol A. Ort,* Ph.D., Associate Professor of Biology.
B.S., Michigan State University, 1969; Ph.D., University of California, Berkeley, 1974. (1977-1983)

Mark A. Osborne, M.A., Coordinator, Academic Advisement Center.
B.A., University of Oregon, 1983; M.A., 1986. (1988)

William P. O'Shaughnessy, M.D., Clinical Associate Professor.
M.D., Creighton University, 1971. (1979)

Howard W. Owen, Clinical Associate Professor of Surgery.
M.D., University of Chicago School of Medicine, 1946. (1979)

James L. Owen,* Ph.D., Professor of Speech and Theatre.
B.A., University of Denver, 1956; M.A., 1960; Ph.D., 1967. (1972-1981)

David E. Owensby, M.D., Assistant Professor of Internal Medicine.
M.D., Northwestern University, 1972. (1985)

Nathan I. Ozobia, M.D., Clinical Instructor of Surgery. (1982)

Phillip M. Padellford, M.S., Assistant Professor of Journalism.
B.S., Iowa State University, 1962; M.S., University of Southern California, 1968. (1983)

Paul A. Page,* Ph.D., Vice President for Development.
B.S., Kansas State College of Pittsburg, 1962; M.S., 1964; Ph.D., University of Kansas, 1973. (1969-1978)

Gailmarie Pahmeier-Henry, M.F.A., Lecturer in English.
B.A., Southern Illinois University, 1979; M.F.A., University of Arkansas, 1983. (1985)

Elmer G. Palitang, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., Philippine Union College, 1964; M.D., University of the East Ramon Magsaysay Memorial Medical Center, 1969. (1988)

*Graduate faculty.

Karen Pantazis, M.D., Clinical Assistant Professor of Surgery.
M.D., Indiana University-Indianapolis, 1980. (1988)

Michael R. Panicari, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of Arizona, 1977. (1985)

Marianne C. Papa, M.S., Area Extension Agent, Cooperative Extension Service.
B.S., University of Nevada, Reno, 1974; M.S., 1980. (1980)

Nicholas C. Pappas, Ph.D., Adjunct Professor of History.
A.B., Stanford University, 1971; A.M., 1972; Ph.D., 1983. (1983)

Jolie B. Pardew, Ph.D., Assistant Professor of Agricultural Economics.
B.S., University of Nevada, Reno, 1980; M.S., 1982; Ph.D., Washington State University, 1985. (1985)

Ronald S. Pardini,* Ph.D., Associate Director of Nevada Agricultural Experiment Station.
B.S., California State Polytechnic College, 1961; Ph.D., University of Illinois, 1965. (1968-1977)

Edson O. Parker, III, M.D., Clinical Assistant Professor of Surgery.
B.S., Auburn University, 1973; M.D., Vanderbilt University, 1978. (1986)

Lexey S. Parker, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., University of New Mexico, 1976. (1985)

Lois J. Parker,* Ph.D., Counseling Psychologist, Counseling Center and Testing Services.
B.A., University of Florida, 1968; M.R.C., 1970; Ph.D., University of Idaho, 1978. (1979-1983)

Steven W. Parker, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Alabama, 1979. (1985)

Carol A. Parkhurst, M.L., Librarian.
B.A., Washington State University, 1972; M.L., University of Washington, 1974. (1979-1983)

Samuel D. Parks, M.D., Clinical Assistant Professor of Pathology and Laboratory Medicine.
M.D., University of Colorado, 1971. (1984)

Robert J. Parlasca, M.D., Clinical Assistant Professor of Surgery.
A.A., Foothill Junior College, 1973; B.A., San Jose State University, 1974; M.D., University of California-Davis, 1978. (1988)

Julian Parra, M.D., Clinical Assistant Professor, Family Medicine.
B.A., Boise State University, 1973; B.A., 1976; B.S., 1980; M.D., University of California, San Diego, 1984. (1987)

Talkad L. Pathi, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., Government Medical College, India, 1963. (1986)

John Patterson, M.D., Clinical Assistant Professor.
A.B., Miami University of Ohio, 1969; M.D., Ohio State University, 1973. (1984)

Ira B. Pauly, M.D., Professor of Psychiatry and Behavioral Sciences.
B.A., University of California, Los Angeles, 1954; M.A., 1959; M.D., 1958. (1978)

Earlene L. Paynter, Ph.D., Professor of Pathology/Laboratory Medicine.
B.A., Our Lady of Lake College, 1964; M.A., 1966; Ph.D., University of Kansas, 1970. (1989)

John H. Peacock,* M.D., Professor of Internal Medicine.
B.A., Harvard University, 1960; M.S., Northwestern University, 1963; Ph.D., 1965; M.D., 1967. (1980)

Rosemary Peacock, M.A., Assistant Professor of Journalism.
M.A., University of Nevada, Reno, 1985. (1985)

Kenneth J. Peak,* Ph.D., Associate Professor of Criminal Justice.
B.S., Kansas State College of Pittsburg, 1973; M.S., 1973; Ph.D., University of Kansas, 1983. (1983-1987)

Daniel L. Pease, B.S. in B.A., Director of Financial Services.
B.S. in B.A., University of Nevada, 1959. (1968-1980)

Owen C. Peck, M.D., Associate Dean of Medical School and Professor of Internal Medicine.
B.A., University of Kansas, 1948; M.D., 1951. (1972)

Elaine L. Pedersen,* Ph.D., Assistant Professor of Agricultural Economics.
B.A., University of Washington, 1973; M.S., Michigan State University, 1975; Ph.D., University of Minnesota, 1983. (1985)

Kathleen Marie Leach Peele, R.N., Pediatric Nurse Practitioner.
R.N., St. Josephs School of Nursing, 1973. (1983)

Frances M. Pelaar, M.Ed., Adjunct Instructor of Nursing.
B.S., Trenton State College, 1970; M.Ed., 1977. (1983)

Gary L. Peltier,* Ph.D., Professor of Educational Leadership
B.A., Michigan State University, 1958; M.A., University of Illinois, 1959; M.A., University of Denver, 1963; Ph.D., 1965. (1965-1974)

Penelope A. Pemberton, M.D., Clinical Assisant Professor of Pediatrics.
B.S., University of Nevada, 1961; M.D., University of Utah, 1965. (1982)

William A. Peppin,* Ph.D., Research Seismologist and Lecturer in Seismological Lab.
B.A., University of California, Berkeley, 1967; M.A., 1969; Ph.D., 1974. (1984)

Melanie Perish, M.A., Acting Director of Planned Giving and Scholarships.
M.A., Indiana University, 1974.

Fred L. Perriera, Ed.D., Director, Student Organizations and Activities.
B.A., Chico State College, 1968; M.Ed., University of Nevada, Reno, 1979; Ed.D., University of San Francisco, 1986. (1968-1975)

Jesse E. Perry, M.D., Clinical Instructor of Surgery.
M.D., Loma Linda University, 1974. (1985)

Joyce Anne Persek, B.S., Clinical Instructor of Nursing.
B.S., Sierra Nevada College, 1982. (1986)

Gerald W. Petersen,* Ph.D., Associate Professor of Foreign Languages and Literatures.
B.A., Brigham Young University, 1961; A.M., University of Illinois, 1963; Ph.D., 1967. (1970-1971)

Dean G. Peterson, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of Illinois, 1962. (1988)

Frederick F. Peterson,* Ph.D., Professor of Plant Science.
B.S., University of Wisconsin, 1950; M.S., Cornell University, 1953; Ph.D., Washington State University, 1961. (1967-1973)

John Peterson, B.S., Lecturer in Accounting and Computer Information Systems.
B.S., University of Nevada, Reno, 1984. (1985)

Linda W. Peterson, Ph.D., Associate Professor of Pediatrics.
B.S. in Nurs., University of Washington, 1962; M.N., 1965; Ph.D., Union Graduate School, 1977. (1971-1975)

Robert F. Peterson,* Ph.D., Professor of Psychology.
B.S., University of Washington, 1961; M.S., 1964; Ph.D., 1965. (1971-1976)

Wallace J. Peterson, M.S., Extension Agent-in-Charge, Cooperative Extension Service.
B.S. in Ag., Colorado State University, 1954; M.S., 1961. (1965-1982)

John H. Pettas, M.S., Assistant Football Coach, Intercollegiate Athletics.
B.S., California State Polytechnic Institute, San Luis Obispo, 1974; M.S., University of Colorado, 1977. (1979)

John C. Pettey, Ph.D., Associate Professor of Foreign Languages.
B.A., University of Arizona, 1980; M.A., 1982; Ph.D., Washington University, 1989. (1989)

Donald C. Pfaff,* Ph.D., Associate Professor of Mathematics.
A.B., University of California, Berkeley, 1957; M.A., 1959; Ph.D., 1969. (1961-1972)

Kent L. Phillips, D.D.S., Clinical Assistant Professor of Cranio Facial Pain and Temporo Mandibular Joint Dysfunction Program.
M.S., Loma Linda University, 1979; D.D.S., 1973. (1986)

Keith A. Pierce,* Ed.D., Professor of Counseling and Educational Psychology.
A.B., Wheaton College, 1952; M.Ed., University of Oregon, 1958; Ed.D., 1965. (1973-1977)

Edmond J. Pierczynski, M.D., Clinical Assistant Professor of Family and Community Medicine.
B.S., North Carolina State University, 1957; M.S., 1959; M.D., University of Colorado, 1975. (1979)

Dean Pierce, D.S.W., Professor of Social Work.
B.A., The College of Idaho, 1965; M.S.W., West Virginia University, 1971; D.S.W., University of California-Berkeley, 1980. (1989)

Ellen F. Pillard, M.S.W., Associate Professor of Social Work.
A.B., Antioch College, 1960; M.S.W., University of Washington, 1967. (1977)

Vicharn Pimatukarnta, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., Chiang Mai Medical School, Thailand, 1975. (1985)

Mark A. Pinsky, Ph.D., Associate Professor of Mathematics.
M.S., Dnepropetrovsh State University, 1971; Ph.D., 1975. (1989)

John F. Pinto, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., Akron University, 1968; M.D., St. Louis University, 1972. (1988)

Lonnie C. Pippin, Co-operating Professor of Anthropology. (1980)

Richard L. Pitter,* Ph.D., Associate Research Professor, DRI.
A.B., UCLA, 1970; M.S., 1970; Ph.D., 1973. (1981)

Arthur B. Pitterman, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., University of Rhode Island, 1971; M.D., University of Utah, 1975. (1986)

John S. Pixley, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., New York Medical College, 1975. (1987)

Stanley L. Plecha, Jr., M.D., Clinical Assistant Professor, Surgery.
B.S., United States Air Force Academy, 1971; M.A., University of California, Los Angeles, 1972; M.D., Case Western Reserve University School of Medicine, 1982. (1987)

Olena K. Plummer, Ed.D., Assistant Professor of Recreation, Physical Education, and Dance.
B.S. in Ed., University of Nevada, Reno, 1972; M.S. in Ed., 1976; Ed.D., Montana State University, 1985. (1974-1979)

*Graduate faculty.

Earl Plunkett, M.D., Clinical Assistant Professor.
B.S., Brigham Young University, 1973; M.D., Southern Illinois University, 1975. (1984)

Nancy J. Podewils, M.S.W., A.C.S.W., Clinical Instructor of Psychiatry.
B.A., Cornell University, 1965; M.S.W., University of Pennsylvania, 1967. (1988)

Michael Pokroy, M.D., Associate Professor of Pediatrics.
M.D., Capetown University, 1965. (1985)

Neville Pokroy, M.D., Assistant Professor of Internal Medicine.
M.B., University of Cape Town, 1965; A.S., 1972; M.D., 1977. (1982)

Hilton R. Pollock, M.D., Clinical Assistant Professor.
M.D., Witwatersrand University, 1975. (1984)

Richard L. Post, M.S., Area Extension Specialist, Western Extension Area.
B.S., Montana State College, 1962; M.S., 1964. (1964-1978)

Cyrus A. Pourzan, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., John Carroll University, 1974; M.D., College of Medicine, University of Cincinnati, 1980. (1989)

Shirley K. Powell, M.S., Instructor of Family and Community Medicine.
B.S., University of Nevada, Reno, 1977; M.S., 1982. (1983)

W. Gary Powers, M.Ed., Head Baseball Coach, Intercollegiate Athletics.
B.S., University of Nevada, Reno, 1971; M.Ed., 1972. (1982)

Alan R. Pratt, M.D., Clinical Associate Professor.
B.S., University of Tulsa, 1959; M.A., Indiana University, 1961; M.D., University of Utah College of Medicine, 1969. (1975-1981)

Richard Pratt, Ph.D., Clinical Psychologist, Sierra Nevada Job Corps Center.
B.A., California State University, Sacramento, 1970; M.A., 1975; Ph.D., University of Texas, 1979. (1989)

Edwin W. Prentice, M.D., Clinical Assistant Professor.
B.A., Marquette University, 1938; M.D., 1942. (1971)

John I. Pretto, M.D., Clinical Assistant Professor.
B.S., University of Illinois, 1954; M.D., University of Illinois at the Medical Center, 1958. (1981)

Jonathan G. Price,* Ph.D., Director/State Geologist of the Nevada Bureau of Mines and Geology.
B.A., Lehigh University, 1972; M.A., University of California at Berkeley, 1975; Ph.D., 1977. (1988)

Keith F. Priestley,* Ph.D., Professor of Geophysics and Associate Research Seismologist, Seismological Laboratory.
B.S., University of Washington, 1968; M.S., 1971; Ph.D., University of Nevada, Reno, 1974. (1982-1987)

ɔris A. Pritsos,* Ph.D., Assistant Professor of Nutrition.
A.B., Occidental College, 1975; Ph.D., University of Nevada, Reno, 1982. (1985)

ɔbert G. Proctor, M.D., Clinical Assistant Professor.
B.A., University of Richmond, 1951; M.D., Medical College of Virginia, 1955. (1975)

. Malin Prupas, M.D., Clinical Associate Professor.
B.S., University of Nevada, Reno, 1971; B.S., 1973; M.D., Tufts University, 1975. (1980)

)on C. Prusso,* Ph.D., Associate Professor of Biology.
B.S., University of Nevada, 1958; M.S., Washington State University, 1961; Ph.D., University of California, Davis, 1963. (1965-1971)

ɟeorge W. Prutzman, Jr., M.D., Clinical Associate Professor.
M.D., Hahnemann Medical College, 1964. (1971-1979)

Ielson G. Publicover, Ph.D., Associate Professor of Physiology and Assistant to the Dean for Computers, School of Medicine.
B.S., Dalhousie University, 1976; M.S., 1977; Ph.D., McGill University, 1982. (1982-1988)

ferle E. Puffer,* M.M., Professor of Music.
B.M., University of Rochester, 1950; M.M., 1956. (1966-1972)

ɔbert H. Quilitch, Ph.D., Adjunct Assistant Professor of Psychology.
B.A., Mexico City College, 1962; M.S.W., Washington University, 1965; Ph.D., University of Kansas, 1973. (1983)

dward J. Quinn, M.D., Assistant Professor of Internal Medicine.
B.A., St. Michael's College, 1965; M.D., Creighton University, 1969. (1982)

Clayton B. Rabedeaux, B.A., Assistant Athletic Director – Promotions, Intercollegiate Athletics.
B.A., Iowa Wesleyan College, 1954. (1977-1979)

Kambiz Raffiee,* Ph.D., Associate Professor of Economics.
B.S., Pahlavi University, 1977; M.S., University of Oregon, 1983; Ph.D., 1983. (1983-1989)

Richard H. Rahe, M.D., Professor of Psychiatry and Behavioral Sciences and Director, Center for Research in Human Stress.
M.D., University of Washington School of Medicine, 1961. (1986)

Hazel D. Ralston, B.A., Special Services Counselor, Special Programs.
B.A., American Baptist Theological Seminary, 1961. (1979)

V.A. Ram, M.D., Clinical Assistant Professor.
M.D., University of Mysore, 1956. (1982)

Alan R. Ramelli, B.S., Research Associate, Nevada Bureau of Mines and Geology.
B.S., University of Nevada, Reno, 1983. (1986)

William D. Ramos, M.D., Clinical Associate Professor.
A.B., Dartmouth College, 1966; M.D., Downstate Medical Center, State University of New York, 1970. (1978)

Jeffery P. Ramsey, B.A., Assistant Football Coach.
B.A., University of California, Davis, 1983. (1989)

Aldo W. Ranallo, B.S. in Ed., Assistant Director, Student Financial Services.
B.S. in Ed., University of Nevada, Reno, 1974. (1976-1981)

George E. Randall, M.S., Research Seismologist.
S.B., Massachusetts Institute of Technology, 1970; M.S., University of Southern California, 1971. (1988)

Kanatur Bhaskara Rao, Ph.D., Director of Advising, Counseling & Retention Programs, Student Services.
B.A., University of Mysore, 1948; M.A., University of Nagpur, 1951; Ph.D., University of Iowa, 1957. (1979-1983-1984)

Mahesh Rao, M.S., Assistant Professor of Electrical Engineering.
B.S., University of Mysore, India, 1981; M.S., University of Windsor, Canada, 1984. (1988)

Richard J. Raskin, M.D., Assistant Professor of Internal Medicine.
M.D., Northwestern University Medical School, 1972. (1984)

Andrea Rassuchine, B.S., Student Account Manager, Controller's Office.
B.S., University of Nevada, Reno, 1979. (1983)

Mujahid Rasul, M.D., Clinical Assistant Professor.
M.D., King Edward Medical College, 1961. (1978)

Banmali Rawat,* Ph.D., Professor of Electrical Engineering.
B.S., Banaras Hindu University, 1968; M.S., 1970; Ph.D., Sri Venkateswara University, 1976. (1988)

C. Elizabeth Raymond,* Ph.D., Assistant Professor of History.
A.B., Princeton University, 1974; M.A., University of Pennsylvania, 1975; Ph.D., 1979. (1984)

John M. Read, M.D., Clinical Associate Professor.
A.B., Stanford University, 1940; M.D., 1944. (1979)

Marsha H. Read,* Ph.D., Professor of Nutrition.
B.S., University of Nevada, Reno, 1968; M.S., 1969; Ph.D., Utah State University, 1977. (1969-1984)

Brian W. Reagan, M.D., Clinical Assistant Professor.
B.S., Washington State University, 1966; M.D., University of Washington, 1970. (1980)

Thomas Rebane, M.D., Clinical Assistant Professor of Surgery.
B.S., University of Michigan, 1964; M.S., 1965; Ph.D., 1970; M.D., 1975. (1988)

Carl A. Recine, M.D., Clinical Assistant Professor of Obstetrics and Gynecology.
M.D., Temple University, 1977. (1985)

Charles V. Records, M.Ed., Associate Registrar.
B.A.Ed., Western Washington State College, 1972; M.Ed., 1973. (1976-1979)

Atigadda N. Reddy, M.D., Clinical Associate Professor of Internal Medicine.
M.D., Osmania University, 1969. (1983)

Moola Prabhakar Reddy, M.D., Assistant Professor of Internal Medicine.
M.D., Osmania University, 1970. (1983)

Ramana G. Reddy,* Ph.D., Associate Professor of Metallurgical Engineering.
B.E., Osmania University, 1973; M.T., Indian Institute of Technology, 1975; Ph.D., University of Utah, 1980. (1980-1985)

Doug Redelman, Ph.D., Associate Professor of Microbiology and Veterinary Medicine.
A.B., Miami of Ohio, 1965; M.S., Indiana University Medical Center, 1970; Ph.D., 1973. (1984)

Howard M. Reed,* Ph.D., Associate Professor of Economics.
B.A., San Jose State College, 1968; Ph.D., University of Utah, 1974. (1972-1978)

Phyllis A. Reed, Ph.D., Associate Professor and Chairman of Health Resources.
B.S., Southern Illinois University at Carbondale, 1968; M.S.Ed., 1974; Ph.D., 1979. (1982-1987)

Thomas A. Reed, M.A., Director, Scholarships.
B.S., University of Nevada, Reno, 1970; M.A., 1972. (1987)

Randall C. Reid,* Ph.D., Professor of English and American Literature.
A.B., San Francisco State College, 1959; A.M., Stanford University, 1961; Ph.D., 1966. (1975-1977)

Jackie M. Reilly, B.S., Master Teacher, Child and Family Center.
B.S., University of Nevada, Reno, 1976. (1988)

Galen M. Reimer, M.D., Clinical Associate Professor.
B.A., Westmont College, 1975; M.D., Louisiana State University, 1979. (1983)

Joseph A. Reinkemeyer, M.D., Clinical Associate Professor.
M.D., St. Louis University, 1961. (1971-1979)

Ronald C. Reitz,* Ph.D., Professor of Biochemistry.
B.S., Agricultural and Mechanical College of Texas, 1961; Ph.D., Tulane University, 1966. (1975-1981)

Robert Resnick, M.D., Clinical Professor of Obstetrics and Gynecology.
M.D., Case Western Reserve University, 1965. (1985)

*Graduate faculty.

Marianne V. Retfalvy, Ed.D., Adjunct Assistant Professor of Psychology.
B.S., School of Arch., Budapest, Hungary, 1960; M.S., West Virginia University, 1971; Ed.D., 1976. (1980)

Mark Rettenmaier, M.D., Clinical Associate Professor of Obstetrics and Gynecology.
M.D., Iowa University, 1977. (1985.

John F. Reynolds, Assistant Professor of Military Science. (1988)

Keith Rheault, Ph.D., Adjunct Assistant Professor of Agricultural Education and Communication. (1986)

Dorothy F. Rice, B.S.L.S., Administrative Services Librarian.
B.A., North Texas State College, 1947; B.S.L.S., 1950. (1971-1974)

James T. Richardson,* Ph.D., Professor of Sociology and Judicial Studies.
B.A., Texas Technological College, 1964; M.A., 1965; Ph.D., Washington State University, 1968; J.D., Old College, 1986. (1968-1977)

James G. Rigby, M.S., Geologist, Nevada Bureau of Mines and Geology.
B.S., University of Akron, 1969; M.S., University of Idaho, 1982. (1985)

Thomas P. Ringkob,* Ph.D., Associate Professor of Animal Science.
B.S., Iowa State University of Science and Technology, 1962; M.S., University of Missouri, 1964; Ph.D., Cornell University, 1970. (1968-1973)

Kenneth P. Rippee, B.S., Assistant Football Coach, Intercollegiate Athletics.
B.S., College of Southern Utah, 1968. (1982)

John N. Ritenhouse, M.S.L.S., Librarian.
B.A., Southern Illinois University, 1963; M.S.Ed., 1964; M.S.L.S., University of Kentucky, 1966. (1967-1969)

Marilyn G. Ritter, M.S., Adjunct Instructor of Nursing.
B.S., University of Alabama, 1972; M.S., 1975. (1983)

Roger S. Ritzlin, M.D., Clinical Assistant Professor.
B.S., University of Illinois, 1970; M.D., University of Illinois at the Medical Center, 1974. (1981)

Bruce E. Robbins, M.D., Clinical Assistant Professor of Surgery.
B.S., Rensselaer Polytechnic Institute, 1972; M.D., Albany Medical College of Union University, 1976. (1989)

Arthur Roberto, B.S., Deputy Controller.
B.S., University of Nevada, Reno, 1974. (1977)

David L. Roberts, M.D., Clinical Associate Professor.
B.S., Northwestern University, 1953; M.D., 1956. (1971)

Jack Robertson, M.D., Clinical Professor of Obstetrics and Gynecology. (1986)

Michael G. Robinson, Ph.D., Assistant Professor of Curriculum and Instruction.
B.A., University of Texas, Austin, 1965; M.Ed., University of Maryland, 1974; Ph.D., 1986. (1987)

Nancy Rody, AHEC Deputy Director, School of Medicine. (1987)

Sandra B. Rogers, B.A., Special Assistant to the Vice President for Development.
B.A., University of California, Berkeley, 1972. (1988)

Jorge N. Rojas,* Ph.D., Professor of Foreign Languages and Literatures.
B.A., University of Chile, 1964; M.A., University of Washington, 1967; Ph.D., 1971. (1973-1986)

Joseph A. Rojas, M.D., Director of Resident Program and Associate Professor of Obstetrics and Gynecology.
M.D., Louisiana State University Medical Center, 1957. (1982)

Norton A. Roitman, M.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
B.S., University of Wisconsin-Madison, 1972; M.D., University of Illinois, 1976. (1986)

Cecelia M. Romero, M.D., Assistant Professor of Family and Community Medicine.
B.S., New Mexico University, 1968; M.D., University of New Mexico, 1974. (1988)

Margaret Ann Ronald,* Ph.D., Dean, College of Arts and Science.
A.B., Whitman College, 1961; M.A., University of Colorado, 1966; Ph.D., Northwestern University, 1970. (1970-1982)

Charles B. Rose,* Ph.D., Associate Professor of Chemistry.
B.S., Brigham Young University, 1960; A.M., Harvard University, 1963; Ph.D., 1966. (1966-1973)

Edward Rose, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of California, Los Angeles, 1972. (1985)

Norman S. Rose, Ph.D., Assistant Professor of Curriculum and Instruction.
B.A., Washington University, 1972; M.A., 1972; Ph.D., University of North Texas, 1983. (1989)

Adolf Rosenauer, M.D., Clinical Professor of Surgery.
M.S., University of Cincinnati, 1952; M.D., Leop. Franzens Universitaet, Austria, 1947. (1985)

Howard Rosenberg, M.Ed., Professor of Art.
B.S.Ed., Massachusetts College of Art, 1962; M.Ed., Harvard University, 1965. (1967-1979)

Mark Rosenberg, M.D., Clinical Assistant Professor.
B.S., University of Miami, 1973; M.D., Medical College of Virginia, 1978. (1984)

Charles Ross, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of California, Davis, 1977. (1985)

John Alan Ross, M.S., Instructor of Civil Engineering.
B.S., University of Idaho, 1962; M.S., 1964. (1986)

Stuart Rothenberg, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., New York University School of Medicine, 1974. (1984)

Ronald J. Rothstein, M.D., Assistant Professor of Pediatrics.
B.S., University of Florida, 1962; M.D., 1966. (1975)

Dennis Rowe,* Ph.D., Adjunct Professor of Plant Science.
M.S., Pennsylvania State University, 1976; Ph.D., 1980. (1984)

William D. Rowley,* Ph.D., Professor of History.
B.A., University of Puget Sound, 1961; M.A., University of Nebraska, 1963; Ph.D., 1966. (1967-1971)

Joel Rubenstein, Ph.D., Clinical Assistant Professor.
B.S., University of Michigan, 1969; M.D., Loyola University, 1974; Ph.D., 1974. (1983)

Garry Rubenstein, M.A., Coordinator, Drug Education and Awareness Program.
B.A., Rockford College, 1970; M.A., Eastern New Mexico University, 1972. (1984)

Frank V. Rueckl, M.D., Clinical Assistant Professor.
B.S., West Virginia University, 1942; M.D., Tulane University, 1944. (1978)

Wilma Rule, Ph.D., Adjunct Associate Professor of Political Science.
Ph.D., New York Univetsity, 1974. (1975)

John C. Russell, M.D., Clinical Assistant Professor.
B.M.S., University of California, San Francisco, 1968; M.D., 1971. (1982)

Richard F. Russell, M.D., Clinical Assistant Professor of Surgery.
B.A., Columbia University, 1983; M.D., Suny Health Science Center College of Medicine, 1983. (1988)

Richard W. Rust,* Ph.D., Associate Professor of Biology.
B.S., Utah State University, 1965; M.S., 1968; Ph.D., University of California, Davis, 1972. (1978-1980)

Nancy L. Ryburn Magrane, M.A., Clinical Adjunct Instructor of Nursing.
B.S.N., University of Wisconsin, 1973; M.A., Sangamon State University, 1976. (1984)

William B. Rydell, M.D., Associate Professor of Surgery.
B.A., Harvard University, 1953; M.D., Northwestern University, 1957. (1982)

Roderick D. Sage, M.D., Clinical Professor.
B.A., State University of Iowa, 1949; M.D., Stanford University, 1954. (1971-1981)

Mehdi Saiidi,* Ph.D., Professor of Civil Engineering.
M.S., Tehran University, 1973; M.S., University of Illinois at Urbana-Champaign, 1977; Ph.D., 1979. (1979-1988)

Ashley L. St. James, Ph.D., Lecturer in Art.
B.A., University of California, Los Angeles, 1951; M.A., 1973; Ph.D., Courtauld Institute of Art University, London, 1983. (1986)

Cecelia M. St. John, M.Ed., Director of Alumni Relations and Records.
B.A., University of Nevada, 1963; M.Ed., University of Washington, 1967. (1967-198

Vasco A. Salvadorini, M.D., Clinical Professor.
M.D., McGill University, 1940. (1978-1982)

John P. Sande, Jr., M.D., D.D.S., Clinical Associate Professor.
B.S., University of Minnesota, 1949; D.D.S., 1944; M.D., 1950. (1971-1979)

Catharine D. Sanders, M.Ed., Director, Independent Study.
B.A., University of Nevada, Reno 1975; M.Ed., 1984. (1988)

Kenton M. Sanders,* Ph.D., Professor of Physiology.
A.B., University of California, Santa Cruz, 1972; Ph.D., University of California, Angeles, 1976. (1982-1986)

Manalur Sandilya, Ph.D., Assistant Professor of Managerial Sciences.
B.Tech., Indian Institute of Technology, 1972; M.B.A., 1974; M.S., Carnegie Mel University, 1981; Ph.D., 1988. (1983)

Jack P. Sargent, M.D., Clinical Assistant Professor.
M.D., University of Southern California, 1949. (1975-1979)

Michael Sarich, M.F.A., Assistant Professor of Art.
B.F.A., Northern Illinois University, 1980; M.F.A., University of Oklahoma, 19 (1989)

Stephen Savtan, M.D., Clinical Associate Professor of Internal Medicine.
B.A., Swarthmore College, 1964; M.D., Thomas Jefferson University, 1968. (1988)

Thomas W. Sawyer, M.Ed., Director of the Learning Resource Center, College of Education.
B.S., University of Nevada, Reno, 1971; M.Ed., 1980. (1988)

George P. Schanz, M.D., Clinical Assistant Professor of Surgery.
B.S., Ohio State University, 1962; M.D., 1966. (1988)

Kathleen M. Schegg, Ph.D., Research Assistant Professor of Internal Medicine.
B.S., University of Santa Clara, 1970; M.S., University of Nevada, Reno, 1977; Ph.D., 1980. (1986)

Steven A. Schiff, M.D., Clinical Associate Professor.
B.A., University of Virginia, 1966; M.D., New York Medical College, 1970. (1979-1981)

*Graduate faculty.

Lawrence K. Schneider,* Ph.D., Professor of Anatomy.
B.A., University of Washington, 1960; Ph.D., 1966. (1973-1976)

Edward L. Schoenberg, M.A., Director, Outreach Services, New Student Programs.
B.A., Whittier College, 1974; M.A., University of Nevada, Reno, 1989. (1984)

Adolph A. Schonder, M.D., Clinical Assistant Professor.
B.A., Washington University, 1961; M.D., 1965. (1975)

David A. Schooley, Ph.D., Professor of Biochemistry.
B.A., New Mexico Highlands University, 1963; Ph.D., Stanford Univeristy, 1968. (1988)

Julie K. Schorr,* Ph.D., Associate Professor of Nursing.
B.S.N., Northern Michigan University, 1972; M.S.N., Wayne State University, 1977; Ph.D., 1982. (1981-1984)

William A. Schrader, M.D., Clinical Assistant Professor.
B.S., Lawrence College, 1950; M.D., University of Wisconsin, 1954. (1980)

Robert P. Schultz, M.D., Clinical Associate Professor.
B.S., University of Southern California, 1956; M.D., Creighton University, 1960. (1971-1979)

Richard A. Schweickert,* Ph.D., Professor of Geological Sciences, Nevada Bureau of Mines and Geology.
B.S., Stanford University, 1967; Ph.D., 1972. (1982)

Susan F. Schweitzer, M.S., Adjunct Instructor of Nursing.
B.S.N., St. Louis University, 1976; M.S., University of Nevada, Reno, 1980. (1981)

Barbara J. Scott, M.P.H., Assistant Professor of Family and Community Medicine.
B.S., California State Polytechnic University, 1972; M.P.H., University of California, Los Angeles, 1973. (1983)

John G. Scott, Jr., M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1965; M.S., 1966; M.D., University of Louisville, 1970. (1982)

Lawrence T. Scott,* Ph.D., Professor of Chemistry.
A.B., Princeton University, 1966; A.M., Harvard University, 1968; Ph.D., 1970. (1975-1980)

Laura L. Scoville, M.D., Clinical Instructor of Internal Medicine.
B.S., University of Connecticut, 1977; M.D., University of Massachusetts, 1985. (1989)

Jock J. Scowcroft, D.D.A., Arts Producer, Instructional Media Services.
D.D.A., Royal Scottish Academy of Music, 1966. (1980)

Thomas J. Scully, M.D., Professor of Pediatrics.
B.A., Colgate University, 1954; M.D., Albany Medical College, 1958. (1971-1977)

Jeffrey Seemann, Ph.D., Associate Professor of Plant Science and Biochemistry.
B.A., Oberlin College, 1977; Ph.D., Stanford University, 1982. (1987)

David R. Seibert,* Ph.D., Professor of Speech and Theatre.
A.B., University of California, Berkeley, 1962; M.A., San Francisco State College, 1968; Ph.D., University of Denver, 1973. (1975-1987)

Douglas J. Seip, M.D., Clinical Assistant Professor.
B.A., Indiana University, 1967; M.D., 1970. (1984)

Harold S. Sekiguchi,* Ph.D., Professor of Managerial Sciences.
B.A., University of Hawaii, 1951; M.Ed., Oregon State College, 1957; Ph.D., University of Iowa, 1964. (1969-1973)

Frances Selsnick, Ch.M., Clinical Associate Professor.
B.A., New York University, 1938; L.R.F.P.S.G., L.R.C.S.Ed., L.R.C.P.Ed., Royal College of Surgeons of Scotland, 1943; F.R.C.S., 1956; Ch.M., University of Liverpool, 1959. (1972-1979)

Sherry L. Semiatin, B.S., Program Administrator, Office of Rural Health.
B.S., University of Nevada, Reno, 1983. (1987)

Imma Sepulveda-Pulvirenti, Ph.D., Assistant Professor of Foreign Languages.
B.A., University of Nevada, Reno, 1976; M.A., 1978; Ph.D., 1987. (1988)

Anthony B. Serfustini, M.D., Clinical Associate Professor of Surgery.
M.D., University of New York, 1966. (1988)

Gordon B. Severance,* Ph.D., J.D., Professor of Managerial Sciences.
A.B., Stanford University, 1943; M.A., 1945; J.D., University of Southern California, 1946; Ph.D., 1949. (1980)

G. Thomas Sewell, M.D., Clinical Assistant Professor.
B.A., Antioch College, 1967; M.D., University of California, San Francisco, 1971. (1980)

David R. Seymour, Ph.D., Director, Bureau of Business and Economic Research.
B.A., California State University, Northridge, 1961; M.A., 1964; Ph.D., University of Pittsburgh, 1966. (1986)

Ronald L. Shane,* Ph.D., Associate Professor of Agricultural Economics.
B.S., University of Nevada, Reno, 1968; M.S., 1971; Ph.D., North Carolina State University at Raleigh, 1976. (1975-1983)

Bruce S. Shapiro, M.D., Assistant Professor of Obstetrics and Gynecology.
B.A., University of California, 1973; M.S., University of Nevada, Reno, 1977; M.D., 1982. (1988)

Leonard Shapiro, M.D., Assistant Professor of Pediatrics.
A.B., Temple University, 1963; M.D., 1967. (1975)

Steven P. Shearing, M.D., Clinical Assistant Professor.
B.A., Cornell University, 1956; M.A., Brandeis University, 1959; M.D., Boston University, 1964. (1978)

Harrison H. Sheld, M.D., Director of Undergraduate Program and Associate Professor of Obstetrics and Gynecology.
B.S., Queen's College, 1955; M.D., Downstate Medical Center State University of New York, 1959. (1982)

Wilbur S. Shepperson,* Ph.D., Professor of History.
B.S., Northeast Missouri State College, 1941; M.A., University of Denver, 1947; Ph.D., Western Reserve University, 1951. (1951-1963)

Geoffrey Sher, F.C.O.G., Clinical Associate Professor.
M.B.Ch.B., Stellenbosch University, 1968; M.R.C.O.G., Royal College of Obstetrics/Gynecology, 1973; F.C.O.G., South African College of Obstetrics/Gynecology, 1973. (1979)

Robert S. Sheridan,* Ph.D., Associate Professor of Chemistry.
B.S., Iowa State University, 1974; Ph.D., University of California, Los Angeles, 1979. (1987)

Edward A. Sherwood, M.D., Clinical Assistant Professor.
M.D., Indiana University, 1966. (1982)

John A. Shields, M.D., Associate Professor.
A.B., University of California, Berkeley, 1966; M.D., University of Colorado Health Sciences Center, 1970. (1982-1988)

Donna Shilinsky, M.S., Adjunct Instructor of Nursing.
B.S., University of California, San Francisco, 1982; M.S., 1983. (1984)

Hyung K. Shin,* Ph.D., Professor of Chemistry.
B.S., University of Utah, 1959; Ph.D., 1961. (1965-1970)

Ramon G. Shoen, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Oregon Medical School, 1959. (1988)

Robert W. Shreck, M.D., Clinical Assistant Professor.
B.S., University of Nebraska-Lincoln, 1970; M.D., 1974. (1979)

Neila S. Shumaker, M.D., Clinical Assistant Professor of Family Medicine.
B.A., University of California, Berkeley, 1972; M.D., Chicago Medical School, 1980. (1989)

Rajaratnam Siddharthan,* Ph.D., Associate Professor of Civil Engineering.
B.S., University of Sri-Lanka, 1977; M.A.Sc., University of British Columbia, 1981; Ph.D., 1984. (1984-1989)

Richard L. Siegel,* Ph.D., Professor of Political Science.
A.B., Brandeis University, 1961; Ph.D., Columbia University, 1967. (1965-1978)

Gail L. Sieren, Ph.D., Clinical Assistant Professor of Internal Medicine.
B.S., University of the Pacific, 1973; Ph.D., 1974. (1988)

Jules A. Silver, M.D., Clinical Assistant Professor.
M.D., Catholic University of Louvain, 1972. (1979)

Mark G. Simkin,* Ph.D., Professor of Accounting and Computer Information Systems.
A.B., Brandeis University, 1965; M.B.A., University of California, Berkeley, 1968; Ph.D., 1972. (1980)

Richard C. Simmonds, Ph.D., Director, Laboratory Animal Medicine; Assistant Dean for Research and Professor of Physiology, School of Medicine.
M.S., Texas A and M University, 1970; D.V.M., University of George, 1964; Ph.D., University of Maryland, 1987. (1988)

Alan H. Simmons, Ph.D., Cooperating Professor of Anthropology.
Ph.D., Southern Methodist University, 1980. (1985)

Michael F. Simons, M.S., Librarian.
B.S., Winona State College, 1970; M.S., Western Michigan State, 1974. (1985)

Lex A. Simpson, M.D., Clinical Assistant Professor of Surgery.
B.A., David Lipscomb College, 1974; M.D., Medical College of Georgia, 1978. (1988)

Eric L. Simrod, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Windsor, 1982. (1988)

Kenneth Sjoen, M.S., Director of Police Department.
B.A., Golden Gate University, 1978; M.S., Pepperdine University, 1986. (1989)

Ronald J. Slaughter, M.D., Clinical Assistant Professor.
B.A., Occidental College, 1963; M.S., M.D., University of Chicago, 1967. (1980)

Mary E. Slavik, M.S.N., Adjunct Instructor of Nursing.
B.S.N., Ohio State University, 1956; M.S.N., Marquette University, 1967. (1983)

Martha J. Slavonic, M.S., Adjunct Instructor of Nursing.
B.S., College of Mount St. Joseph on the Ohio, 1972; M.S., University of Nevada, Reno, 1983. (1983)

Elisabeth C. Small, M.D., Professor of Psychiatry and Behavioral Sciences.
B.A., University of California, Los Angeles, 1955; M.D., 1960. (1981)

James M. Small, M.D., Clinical Assistant Professor, Pathology and Laboratory Medicine.
B.A., The Colorado College, Colorado Springs, 1976; M.D., Ph.D., Duke University, 1983. (1987)

Aaron Smith,* Ph.D., Research Director, School of Medicine, and Associate Professor of Psychiatry and Behavioral Sciences.
A.B., Brown University, 1952; Ph.D., University of Illinois, 1958. (1982)

*Graduate faculty.

Catherine P. Smith,* D.M.A., Professor of Music.
B.A., Smith College, 1954; M.M., Northwestern University, 1957; D.M.A., Stanford University, 1969. (1969-1987)

Edwin G. Smith, M.S., Extension Agent in Charge, Western Cooperative Extension Service.
B.S., University of Nevada, Reno, 1978; M.S., 1984. (1988)

Edwin Wayne Smith, B.S., Assistant Controller, Payroll.
B.S., University of Wyoming, 1968. (1986)

John S. Smith, M.D., Clinical Assistant Professor, Department of Surgery, Anesthesiology.
B.S., Northwestern University, Evanston, 1977; M.D., Northwestern University, Chicago, 1981. (1987)

Lindsay B. Smith, M.D., Clinical Associate Professor.
B.S., DePauw University, 1956; M.D., Northwestern University, 1961. (1978-1979)

Ronald Smith, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., Pacific Lutheran University, 1965; B.A., 1968; M.A., University of California, 1971; Ph.D., University of California School of Medicine, 1973; M.D., 1977. (1989)

Ross W. Smith,* Ph.D., Professor of Chemical and Metallurgical Engineering.
B.S., University of Nevada, 1950; M.S.M., Massachusetts Institute of Technology, 1955; Ph.D., Stanford University, 1969. (1968-1969)

Sarah H. Smith, M.D., Clinical Assistant Professor, Internal Medicine.
B.M.S., Northwestern University, Evanston, 1980; M.D., Northwestern Medical School, Chicago, 1982. (1987)

Warren L. Smith, M.D., Clinical Associate Professor.
B.S., University of Nevada, Las Vegas, 1973; M.D., University of Arizona, 1977. (1982)

M. Bradford Snyder,* Ph.D., Associate Professor of Mechanical Engineering.
B.S., Massachusetts Institute of Technology, 1964; Ph.D., Northwestern University, 1972; Ph.D., University of Michigan, 1985. (1985)

David Soble, B.S., Sales and Marketing Director, Lawlor Events Center.
B.S., University of Arizona, 1985. (1989)

Anton P. Sohn, M.D., Clinical Professor of Pathology and Laboratory Medicine.
B.A., Indiana University, 1958; M.D., 1961. (1980)

Syble Solomon, M.A., Development Specialist and Lecturer in Home Economics.
B.A., Douglass College, Rugers University, 1968; M.A., George Washington University, 1973. (1986)

Henry B. Soloway, M.D., Clinical Professor.
B.A., Oberlin College, 1956; M.D., State University College of Medicine, 1961. (1984)

Robert L. Solso,* Ph.D., Professor of Psychology.
Ph.D., St. Louis University, 1967. (1983)

C. Brian Sonderegger, M.D., Clinical Assistant Professor.
B.S., University of Nevada, Reno, 1972; M.D., University of Alabama, 1976. (1984)

Colin Soong, M.D., Clinical Assistant Professor.
B.A., University of Hawaii, 1963; M.D., University of Colorado Health Sciences Center, 1967. (1978)

Leslie E. Soper, M.D., Clinical Assistant Professor of Surgery.
M.D., University of Toronto, 1961. (1985)

Clyde Sorenson, Ph.D., Assistant Professor of Plant Science.
B.S., North Carolina State University, 1980; M.S., 1984; Ph.D., 1988. (1989)

Alexander Sparkuhl, M.D., Clinical Instructor.
B.A., San Francisco State College, 1966; M.D., Creighton University, 1974. (1982)

David M. Spatz, Ph.D., Research Associate in Geological Sciences.
B.S., University of Arizona, 1970; M.S., 1974; Ph.D., University of Nevada, Reno, 1988. (1988)

Eugene L. Speck, M.D., Assistant Professor of Internal Medicine.
A.B., Brandeis University, 1958; M.S., University of Massachusetts, 1961; Ph.D., George Washington University, 1966; M.D., 1969. (1982)

Daniel R. Spogin, M.D., Assistant Professor of Family and Community Medicine.
A.B., Occidental College, 1974; M.S., University of Southern California, 1976; M.D., 1980. (1984)

Barry H. Spraggins, Associate Professor of Managerial Science. (1987)

Helen F. Squires, B.S., Recruitment Coordinator, Sierra Nevada Job Corps Center.
B.S., University of Nevada, Reno, 1984. (1989)

Tina M. Springmeyer, B.S., Master Teacher, Child & Family Center.
B.S., University of Nevada, Reno. 1989. (1989)

Charles M. Stafford, M.D., Clinical Associate Professor.
M.D., Cambridge University, 1952. (1982)

Miles L. Standish,* Ph.D., Associate Professor of Physiology and Assistant Dean of School of Medicine.
B.A., University of California, Los Angeles, 1965; M.S., Tulane University of Louisiana, 1968; Ph.D., Indiana University, 1970. (1981)

Alan J. Stanley, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., Indiana University-Indianapolis, 1978. (1988)

Gale H. Starich,* Ph.D., Research Assistant Professor of Physiology.
B.S., University of Nevada, Reno, 1973; M.S., 1976; Ph.D., 1981. (1983)

Mary Ann Stasick, M.N.Sc., Adjunct Instructor of Nursing.
B.S., University of Central Arkansas, 1979; M.N.Sc., University of Arkansas, 1982. (1984)

Donna L. Stauffer, M.N., Adjunct Instructor of Nursing.
B.S., University of San Francisco, 1967; M.N., University of California, Los Angeles, 1973. (1980)

John R. Steadman, M.D., Clinical Instructor of Surgery.
B.S., Texas A&M University, 1959; M.D., University of Texas, S.W., 1963. (1983)

Yvonne E. Stedham, M.B.A., Assistant Professor of Managerial Sciences.
B.A., University of Bonn, 1978; M.B.A., University of Kansas, 1980. (1988)

Joyce A. Steele, B.S., Business Manager, Continuing Education.
B.S., University of Nebraska, Lincoln, 1976. (1989)

Edward R. Stevens, M.D., Clinical Assistant Professor.
B.S., Muhlenberg College, 1962; M.D., Temple University, 1966. (1978)

Leonard A. Stevens, Head Basketball Coach, Intercollegiate Athletics. (1987)

Mary Stewart, Ph.D., Director of PACE Program.
B.A., University of Nevada, Reno, 1966; M.A., Temple University, 1968; Ph.D., University of Nevada, Reno, 1973. (1989)

Paul A. Stewart, M.D., Assistant Professor of Internal Medicine.
A.B., Occidental College, 1969; M.D., University of California, Davis, 1973. (1982)

Robert L. Stewart, M.D., Clinical Assistant Professor.
B.S., University of Utah, 1947; M.D., Temple University, 1951. (1977)

Susan L. Stewart, M.A., Life and Health Science Librarian/Physical Sciences Librarian.
B.A., Univetsity of Nevada, Reno, 1969; M.A., University of Denver, 1984. (1989)

Grant B. Stitt, Ph.D., Associate Professor of Criminal Justice.
B.A., University of Arizona, 1969; M.A., 1976; Ph.D., 1979. (1989)

Robert N. Stitt, M.D., Clinical Assistant Professor.
B.S., Pennsyvania State University, 1969; M.D., Medical College of Virginia, 1973. (1979)

Albert Dean Stock, Ph.D., Associate Professor of Pathology and Laboratory Medicine.
B.S., University of Utah, 1963; M.S., 1965; Ph.D., University of Oklahoma, 1983. (1988)

G. Michael Stoker, D.D.S., Clinical Assistant Professor.
D.D.S., University of the Pacific, 1974. (1981)

Stuart W. Stoloff, M.D., Clinical Assistant Professor.
B.A., University of Arizona, 1968; M.D., Temple University, 1975. (1981)

Lorena L. Stookey, M.A., Lecturer in English.
B.A., University of Washington, 1969; M.A., University of Nevada, Reno, 1972. (1979)

Michael A. Stovall, B.S., Director of Printing Services.
B.S., California State Polytechnic University, 1987. (1988)

Gareth W. Strand, M.D., Clinical Assistant Professor.
B.A., Augustana College, 1964; M.D., University of Illinois, 1968. (1977)

Clifford J. Stratton,* Ph.D., Professor of Anatomy.
B.S., Northern Arizona University, 1968; M.S., 1971; Ph.D., Brigham Young University, 1973. (1974-1983)

Neil B. Straus, M.D., Clinical Assistant Professor of Family and Community Medicine.
Professor of Family and Community Medicine. (1986)

John M. Strefeler, Ph.D., Associate Professor of Accounting and Computer Information Systems.
B.S., Kent State University, 1969; Master of Accounting, University of Arizona, 197 Ph.D., 1977. (1981)

Carol T. Streshley, Clinical Instructor of Nursing. (1986)

Murton D. Strimling, M.D., Clinical Assistant Professor.
B.S., University of Illinois, 1955; M.D., University of Illinois at the Medical Cen 1959. (1978)

Paul R. Stuart, B.A., Sports Information Director, Intercollegiate Athletic
B.A., University of New Mexico, 1975. (1981)

Guy M. Sugino, M.D., Clinical Assistant Professor, Family Medicine.
B.S., University of Hawaii, Honolulu, 1978; M.D., George Washington Univer 1983. (1987)

John L. Sutko,* Ph.D., Associate Professor of Pharmacology.
B.S., California State University, Long Beach, 1970; M.S., 1972; Ph.D., India University School of Medicine, 1976. (1986)

Gerhart T. Svare, M.D., Clinical Assistant Professor.
B.S., University of Washington, 1947; M.D., 1951. (1981)

Tony Svejcar,* Adjunct Faculty in Veterinary Medicine. (1986)

Lydia Svetich, M.N., Associate Professor of Nursing.
G.N., Far Eastern University, 1958; M.N., Montana State College, 1962. (1973)

*Graduate faculty.

Keith R. Swanson, M.D., Clinical Instructor of Surgery.
B.S., Midwestern State University, 1967; M.D., University of Texas, 1971. (1983)

Sherman R. Swanson,* Ph.D., Associate Professor of Range, Wildlife and Forestry.
B.S., University of Idaho, 1975; M.S., Oregon State University, 1980; Ph.D., 1983. (1983-1988)

Raymond L. Swarts, M.D., Clinical Assistant Professor.
B.S., University of California, Davis, 1968; M.A., 1970; M.D., St. Louis University, 1974. (1984)

Elizabeth A. Swingrover, Ph.D., Lecturer of English.
B.A., University of Nevada, Reno, 1982; M.S., 1984; Ph.D., 1989. (1988)

Neil Swissman, M.D., Clinical Associate Professor.
B.S., Ohio State University, 1956; M.D., 1960. (1984)

Gary Symonds, M.D., Associate Professor of Internal Medicine.
M.D., University of British Columbia, 1957. (1982)

Julian Ingersoll Taber, Ph.D., Assistant Professor of Psychiatry and Behavioral Sciences.
B.S., University of Pittsburgh, 1955; M.S., 1957; Ph.D., 1961. (1986)

Bruce L.M. Tanenbaum, M.D., Clinical Assistant Professor.
B.S., Massachusetts Institute of Technology, 1972; M.D., University of Maryland, 1976. (1983)

William M. Tappan, M.D., Clinical Associate Professor.
A.B., Hope College, 1942; M.D., University of Michigan, 1945. (1971-1981)

Edward M. Taper, M.D., Clinical Instructor of Surgery.
B.A., Brown University, 1957; M.D., University of Pittsburgh, 1961. (1983)

James V. Taranik,* Ph.D., Professor of Geology.
B.S., Stanford University, 1964; Ph.D., Colorado School of Mines, 1974. (1982)

James S. Tate, Jr., M.D., Clinical Assistant Professor of Surgery.
B.S., University of Illinois, 1967; M.D., Howard University of Medicine, 1972. (1989)

Arthur S. Tayengco, M.D., Assistant Professor of Obstetrics and Gynecology.
B.S., University of San Agustin, 1957; M.D., University of the East, 1963. (1982)

Angela D. Taylor, B.S., Women's Sports Information and Promotions Coordinator, Intercollegiate Athletics.
B.S., University of Nevada, Reno, 1985. (1987)

Danny L. Taylor,* Ph.D., Associate Professor of Mining Engineering.
M.E., Colorado School of Mines, 1968; M.S., 1973; Ph.D., 1980. (1979-1984)

Donald Wayne Taylor, M.S., Television Production Manager, Instructional Media Services.
A.B., Indiana University, Bloomington, 1975; M.S., 1978. (1984)

John Taylor, Men's Tennis Coach, Intercollegiate Athletics. (1987)

Robert E.L. Taylor,* D.V.M., Professor of Veterinary Medicine.
A.B., University of Southern California, 1952; B.S., University of California, Davis, 1955; D.V.M., 1957. (1965-1972)

Cynthia Teel, M.S., Adjunct Instructor of Nursing.
B.S., California State University, Hayward, 1977; M.S., University of Nevada, Reno, 1982. (1984)

William A. Teipner, M.D., Clinical Associate Professor.
B.S., University of Oregon, 1947; M.D., 1950. (1971-1979)

James W. Telford,* Research Professor, DRI and Department of Physics.
B.Sc., Melbourne Univ., 1950; Dip. NAAC, Sydney Univ., 1961; D.Sc., Melbourne Univ., 1970. (1967)

W. Shane Templeton,* Ph.D., Professor of Curriculum and Instruction.
B.A., University of California, Santa Barbara, 1971; M.Ed., University of Virginia, 1972; Ph.D., 1976. (1983-1987)

William T. Terry, M.D., Clinical Associate Professor of Psychiatry and Behavioral Sciences.
B.A., Stanford University, 1965; M.D., Tulane University, 1969. (1978)

Thomas R. Tetzlaff, M.D., Assistant Professor of Pediatrics.
B.S., University of Puget Sound, 1968; M.D., Northwestern University, 1972. (1977)

John S. Thalgott, M.D., Clinical Instructor of Surgery.
B.S., University of Nevada, Reno, 1977; M.D., Washington University, 1979. (1986)

Harry M. Thomas, Jr., M.D., Clinical Professor of Internal Medicine.
B.A., University of Southern Mississippi, 1963; M.D., 1967. (1988)

Helen Lee Thomas, Ph.D., Director of International Programs and Services, Office of International Programs; Adjunct Professor of English.
A.B., Indiana University, 1973; M.S.Ed., 1979; Ph.D., 1987. (1982)

Bradley J. Thompson, M.D., Clinical Assistant Professor.
M.D., Johns Hopkins University School of Medicine, 1979. (1985)

Newton L. Thompson, M.D., Clinical Associate Professor.
B.S., University of Oregon, 1960; M.D., 1962. (1971-1979)

Stanley I. Thompson, M.D., Clinical Assistant Professor.
B.S., University of Denver, 1966; M.D., University of Louisville, 1970. (1982)

Susanne M. Thornley, Pharm.D., Clinical Assistant Professor of Internal Medicine.
B.S., Pharmacy, University of Arizona, Tucson, 1986; Pharm.D., 1987. (1989)

Barbara C. Thornton,* Ph.D., Associate Professor of Health Resources.
B.A., University of Nevada, Reno, 1957; M.A., 1967; Ph.D., University of Utah, 1976. (1977-1982)

Joseph P. Thornton, M.D., Clinical Instructor of Surgery.
M.D., Meharry Medical College, 1971. (1985)

Diana F. Thran, M.S., Assistant Professor of Plant Science.
B.S., University of Nevada, 1962; M.S., 1972. (1976-1979)

James W. Thrasher, M.D., Clinical Associate Professor of Psychiatry and Behavioral Sciences.
B.S., Old Dominion University, 1961; M.D., Virginia Commonwealth University, 1965. (1988)

F. Donald Tibbitts,* Ph.D., Professor of Biology.
B.A., Eastern Washington College of Education, 1951; M.A., Oregon State College, 1955; Ph.D., 1958. (1959-1970)

Fredric L. Tietz, M.D., Clinical Assistant Professor of Family Medicine.
B.A., University of California at Davis, 1976; M.D., University of Southern California, 1982. (1989)

James L. Tigner,* Ph.D., Professor of History.
A.B., University of Redlands, 1948; A.M., Stanford University, 1949; Ph.D., 1956. (1959-1969)

Joseph V. Tingley, M.S., Economic Geologist, Nevada Bureau of Mines and Geology.
B.S., University of Idaho, 1960; M.S., University of Nevada, Reno, 1963. (1978)

Susan L. Tingley, B.A., Editor/Cartographer, Nevada Bureau of Mines and Geology.
B.A., University of California, Los Angeles, 1966. (1978-1981)

Frank J. Tobin,* Ph.D., Professor of Foreign Languages and Literatures.
M.A., Marquette University, 1964; Ph.D., Stanford University, 1968. (1975-1980)

Freddy G. Toffel, M.D., Assistant Professor of Internal Medicine.
M.D., Medical College of Pennsylvania, 1979. (1984)

Fereydoon Tofigh, M.D., Clinical Assistant Professor of Surgery.
M.D., Univeristy of Geneva, 1957. (1983)

Robert N. Tompson,* Ph.D., Professor of Mathematics.
B.S., Adrian College, 1941; M.S., University of Nevada, 1949; Ph.D., Brown University, 1953. (1956-1966)

Daniel J. Tone, M.A., Director of Instructional Media Services.
B.S., Montana State University, 1967; M.A., University of Denver, 1968. (1970-1980)

D. James Tooke,* Ph.D., Assistant Professor of Curriculum and Instruction.
B.S., Sam Houston State University, 1966; M.A., 1972; Ph.D., Texas A and M University, 1986. (1987)

David J. Torell, M.S., Area Extension Specialist, Cooperative Extension Service.
B.S., University of Nevada, Reno, 1977; M.S., 1979. (1979-1983)

Rodney Torell, M.S., Area Extension Agent.
B.S., University of Nevada, Reno, 1977; M.S., 1983. (1984)

James A. Torok, M.D., Clinical Assistant Professor of Internal Medicine.
B.S., Bowling Green State University, 1974; M.D., Ohio State University, 197. (1988)

Theodore J. Torphy, Ph.D., Clinical Assistant Professor.
B.S., University of Wisconsin, 1976; Ph.D., West Virginia University, 1980. (1984)

David A. Torres, M.S.S., Director of Affirmative Action.
B.S., University of Utah, 1973; M.S.S., Utah State University, 1985. (1987)

Benjamin Torres Cabellero, Ph.D., Assistant Professor of Foreign Languages and Literatures.
B.A., Washington University, 1977; M.A., University of Pennsylvania, 1978; Ph.D., 1985. (1985)

Joseph K. Toth, M.D., Clinical Assistant Professor.
B.S., Stanford University, 1968; M.D., Washington University, 1978. (1983)

Walter Treanor, M.D., Clinical Professor of Internal Medicine.
M.D., National University of Ireland, 1947; M.S., University of Minnesota, 1952. (1976)

James H. Trexler,* Ph.D., Assistant Professor of Geological Sciences.
B.S., University of Maryland, 1974; M.S., University of Oklahoma, 1976; Ph.D., University of Washington, 1984. (1986)

Vada E. Trimble, M.Ed., Student Development Specialist.
B.A., University of North Dakota, 1972; M.Ed., South Dakota Srate University, 1976. (1976-1983)

Patricia A. Tripple,* Ed.D., Professor of Human Development and Family Sciences.
B.S., University of Washington, 1946; M.A., Teachers College, Columbia University, 1952; Ed.D., 1955. (1955-1963)

Roberta Trout, Clinical Instructor of Obstetrics and Gynecology. (1986)

Andrezej M. Trzynadlowski, Associate Professor of Electrical Engineering and Computer Science. (1987)

Marjory K. Tsuda, M.S., Adjunct Instructor of Nursing.
B.S., University of Nevada, Reno, 1972; M.S., 1975. (1984)

Glen Tueller, M.D., Clinical Assistant Professor of Family and Community Medicine. (1986)

*Graduate faculty.

Paul T. Tueller,* Ph.D., Professor of Range, Wildlife and Forestry.
B.S., Idaho State College, 1957; M.S., University of Nevada, 1959; Ph.D., Oregon State University, 1962. (1962-1973)

Kenneth E. Turner, M.D., Clinical Assistant Professor.
B.A., Walla Walla College, 1948; M.D., College of Medical Evangelists, 1952. (1980)

Robert H. Turner,* Ph.D., Associate Professor of Mechanical Engineering.
B.S., University of California, Berkeley, 1964; M.S., 1965; Ph.D., University of California, Los Angeles, 1971. (1983)

George R. Twardokens,* Ph.D., Professor of Recreation and Physical Education.
B.S., University of Warsaw (Poland), 1953; M.P.E., 1958; Ph.D., University of Utah, 1975. (1963-1978)

Albert Twesme, D.D.S., Clinical Assistant Professor of Surgery.
D.D.S., Marquette University, 1973. (1985)

Margaret L. Uhalde, M.D., Ph.D., Clinical Assistant Professor of Family and Community Medicine.
B.S., University of Nevada, Reno, 1967; Ph.D., University of Wisconsin, Madison, 1972; M.D., Medical College of Pennsylvania, 1979. (1986)

Gregory S. Uhl, M.D., Clinical Associate Professor of Internal Medicine.
B.A., Ohio State University-Columbus, 1970; M.D., 1973. (1988)

Dennis L. Uken, M.A., Assistant Professor of Speech Pathology.
B.A., University of Arizona, 1969; M.A., 1971. (1989)

James L. Unger, M.D., Clinical Assistant Professor.
B.A., San Francisco State College, 1968; M.D., University of California, Davis, 1972. (1982)

Chris C. Unterseher, M.A., Professor of Art.
B.A., San Francisco State College, 1966; M.A., University of California, Davis, 1967. (1970-1984)

Margaret Ann Urie, Ph.D., Lecturer in English and Director of Core Writing Program.
B.A., Marquette University, 1967; M.A., 1969; Ph.D., University of Nevada, Reno, 1978. (1979)

Carmelo Urza, Ph.D., Coordinator of University Studies in the Basque Country Consortium.
B.A., Boise State College, 1971; M.A., University of Nevada, Reno, 1978; Ph.D., University of Iowa, 1981. (1982)

Janet Usinger-Lesquereux, M.S., Assistant Director of Nevada Cooperative Extension.
B.S., University of Nevada, Reno, 1976; M.S., 1978. (1981)

Condido Vaia, Resident Manager, College Inn. (1978)

William E. Van Buren, M.D., Clinical Assistant Professor.
B.S., Central State College, 1957; M.D., University of Oklahoma, 1961. (1980)

Donald D. Van Dyken, M.D., Assistant Professor.

Hentietta Van Maanen, M.Ed., Area Extension Chairman, College of Agriculture.
B.S., Iowa State College, 1959; M.Ed., University of Maryland, College Park, 1964. (1986)

Duane L. Varble,* Ph.D., Professor of Psychology and Associate Director of Psychological Service Center.
B.A., Southern Illinois University, 1959; M.A., Michigan State University, 1961; Ph.D., 1964. (1968-1974)

Beraldo Antonio Vazquez-Correa, M.D., Clinical Instructor of Internal Medicine.
Premedical, Catholic University of Puerto Rico, 1980; M.D., Ponce School of Medicine, 1985. (1989)

Christine M. Veach, M.S., Instructor of Nursing.
B.S., University of California, San Francisco, 1962; M.S., University of Nevada, Reno, 1982. (1982)

Tracy L. Veach, Ed.D., Associate Professor of Psychiatry and Behavioral Sciences, and Director, Office of Evaluations.
B.A., San Francisco State College, 1966; M.A., 1970; Ed.D., University of Nevada, Reno, 1983. (1976-1987)

James L. Verdi, Ph.D., Clinical Assistant Professor.
B.S., Southern Connecticut State College, 1963; M.S., University of Nevada, Reno, 1966; Ph.D., 1971. (1980)

Gary M. Veserat, M.S., Extension Agent-in-Charge, College of Agriculture.
B.S., California State University, Chico, 1976; M.S., University of California, Davis, 1979. (1989)

Steven L. Vicks, M.D., Associate Professor of Internal Medicine.
M.D., Tufts University School of Medicine, 1977. (1987)

Baldev K. Vig,* Ph.D., Professor of Biology.
B.S., Khalsa College, 1957; M.S., Punjab University, 1961; Ph.D., Ohio State University, 1967. (1968-1978)

Deirdre W. Vinyard, M.A., Coordinator of Intensive English Language Center.
B.A., Simon's Rock, 1979; M.A., University of Iowa, 1982. (1982)

Gary L. Vinyard,* Ph.D., Associate Professor of Biology.
B.A., University of Kansas, 1972; Ph.D., 1977. (1978-1983)

Terry S. Vitez, M.D., Clinical Assistant Professor of Surgery.
B.A., Cornell University, 1966; M.S., University of California-San Francisco, 1973; M.D., University of Pennsylvania, 1970. (1988)

Virginia L. Vogel, M.F.A., Associate Professor of Speech and Theatre.
B.A., Albion College, 1973; M.F.A., Texas Christian University, 1975. (1978-1983)

William E. Von Tobel, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., University of Nevada, Reno, 1981. (1985)

Keith O. Vowles, D.D.S., Clinical Assistant Professor.
D.D.S., Northwestern University, 1959; M.S., University of Nebraska, 1964; M.A., San Francisco State College, 1971. (1977)

Ihor L. Voyevidka, M.D., Clinical Assistant Professor.
B.A., Carroll College, 1963; M.S., Catholic University of America, 1965; M.D., University of Vienna, 1971. (1979)

Jeffrey M. Wachtel,* Ph.D., Assistant Professor of Managerial Sciences.
B.A., State University of New York, College of Cortland, 1968; M.A., State University of New York at Albany, 1971; M.S., Florida International University, 1974; Ph.D., Georgia State University, 1986. (1986)

Guy H. Wagener, Ph.D., Associate Professor of Foreign Languages and Literatures.
B.A., California State University, Long Beach, 1971; M.A., 1973; Ph.D., University of California, Irvine, 1980. (1980-1987)

Edwin F. Wagner,* Ph.D., Associate Professor of Mathematics.
B.S., University of Nevada, 1958; M.S., 1960; Ph.D., University of New Mexico, 1965. (1965-1969)

Richard C. Wagner, M.S., Clinical Instructor.
B.S., Pennsylvania State University, 1975; M.S., Rutgers University, 1976. (1983)

J. Edgar Wakayama,* Ph.D., Associate Professor of Clinical Laboratory Science.
B.A., Northeastern University, 1967; M.S., University of Oregon, 1974; Ph.D., University of Nevada, Reno, 1985. (1979)

June D. Wakayama, B.S., Clinical Instructor of Nursing.
B.S., University of Oregon Health Science Center, 1978. (1986)

Caroline L. Wakefield,* Ph.D., Associate Professor of Anatomy.
B.A., Long Beach State College, 1960; M.S., University of Ottawa, 1968; Ph.D., 1972. (1975-1979)

Mark L. Waldo, Ph.D., Associate Professor of English.
B.A., University of California-Berkeley, 1972; M.A., University of Idaho, 1975; Ph.D., Michigan State University, 1982. (1989)

Joseph R. Walker, M.D., Clinical Assistant Professor of Surgery.
M.D., Creighton University, 1968. (1978)

Roger Walker,* Ph.D., Assistant Professor of Range, Wildlife and Forestry.
B.S., University of Georgia, 1977; M.S., University of Tennessee, 1980; Ph.D., 1982. (1985)

William P. Wallace,* Ph.D., Professor of Psychology.
B.S., University of Redlands, 1962; M.A., Northwestern University, 1964; Ph.D., 1966. (1966-1976)

Larry G. Walsh, M.D., Clinical Assistant Professor of Surgery.
M.D., University of California, San Francisco, 1978. (1985)

Larry A. Walters, M.F.A., Director of Technical Theatre and Associate Professor of Speech and Theatre.
B.A., Central Washington State College, 1974; M.F.A., University of Oregon, 1981. (1981-1987)

Jack Walther, D.V.M., Adjunct Faculty in Veterinary Medicine. (1986)

Joseph A. Warburton, Ph.D., Research Professor, DRI.
B.Sc., Univ. of Sydney, Australia, 1951; M.Sc., Univ. of Queensland, St. Lucia, Australia, 1960; Ph.D., 1976. (1965)

Christopher H. Ward, M.D., Clinical Assistant Professor, Surgery.
B.S., U.S. Naval Academy, 1967; M.D., Northwestern University, Chicago, 1977. (1987)

Sean M. Ward, Research Assistant Professor of Physiology.
B.Sc., University of Ulster, 1983; Ph.D., 1987. (1989)

Shannon G. Ward, B.A., Master Teacher, Child and Family Center.
B.A., University of California, Los Angeles, 1978. (1987)

Lyle G. Warner,* Ph.D., Associate Professor of Sociology.
B.A., University of Arizona, 1963; M.A., 1964; Ph.D., University of Kentucky, 1967. (1969-1971)

Michael M. Warner, Ph.D., Associate Professor of Curriculum and Instruction.
B.A., Occidental College, 1966; M.A., University of Kansas, 1968; Ph.D., 1977. (1989)

Marion A. Warpinski, M.D., Clinical Associate Professor.
M.D., Marquette University, 1946. (1982)

John A. Warren, Pharm.D., Clinical Assistant Professor.
B.S., University of Alabama, 1970; B.S., University of Wyoming, 1978; Pharm.D., University of Texas, 1981. (1984)

Harris J. Waters, M.D., Clinical Assistant Professor of Surgery.
B.S., University of California-Irvine, 1977; M.D., University of California-Los Angeles, 1981. (1988)

*Graduate faculty.

Randol Waters, Ph.D., Assistant Professor of Agricultural Education and Communications.
M.S., Penn State University, 1982; Ph.D., 1985. (1985)

John M. Watson, M.D., Clinical Assistant Professor.
B.S., Fordham University, 1940; M.D., Albany Medical College, 1944. (1982)

Randy C. Watson, M.D., Clinical Instructor of Surgery.
M.D., Louisiana State University, 1967. (1983)

Robert J. Watters,* Ph.D., Professor of Geological Engineering.
B.S., University of Strathclyde, 1969; M.S., University of London, 1970; Ph.D., 1972. (1978-1987)

Thomas L. Watterson,* Ph.D., Associate Professor of Speech Pathology and Audiology.
B.S., St. Louis University, 1971; M.A., 1972; Ph.D., University of Oklahoma, 1976. (1985)

Richard J. Watts,* Ph.D., Assistant Professor of Civil Engineering.
B.A., University of California at Davis, 1976; M.S., Utah State University, 1979; Ph.D., 1983. (1985)

Jacqueline Webb, Nurse Practitioner, Sierra Nevada Job Corps Center. (1988)

Mary W. Webb, M.A., Lecturer in English.
B.A., Northern Arizona State University, 1981; M.A., 1984. (1985)

Donald Wedor, Director of Laboratories, Chemistry Department. (1988)

Elinor Weeks, M.D., Clinical Assistant Professor of Psychiatry and Behavioral Sciences.
B.A., Swarthmore College, 1959; M.D., Western Reserve, 1963. (1989)

Daniel J. Weigel, M.S., Area Extension Specialist, Cooperative Extension Service.
B.S., Colorado State University, 1978; M.S., 1981. (1987)

Harry W. Weigel, M.D., Clinical Assistant Professor.
B.S., University of Nebraska, 1955; M.D., 1958. (1977-1981)

Richard G. Weiher, Ph.D., Clinical Associate Professor and Adjunct Assistant Professor of Psychology.
B.A., Wisconsin State University, 1971; M.S., Eastern Washington State College, 1973; Ph.D., Utah State University, 1975. (1976-1982)

Leonard B. Weinberg,* Ph.D., Professor of Political Science.
A.B., Syracuse University, 1961; M.A., University of Chicago, 1962; Ph.D., Syracuse University, 1967. (1967-1978)

Peter Weiser, M.D., Clinical Assistant Professor of Psychiatry.
M.D., University of Minnesota, Minneapolis, 1976. (1989)

Richard M. Weisner, M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., Indiana University School of Medicine, 1963. (1985)

Malcolm H. Weiss, M.D., Clinical Associate Professor of Family and Community Medicine.
A.B., Columbia University, 1954; M.D., Chicago Medical School, 1958. (1981)

Anne Weist, M.S., Clinical Instructor of Nursing.
B.S., California State University at Los Angeles, 1979; M.S., 1981. (1986)

William H. Welch, Jr.,* Ph.D., Associate Professor of Biochemistry.
A.B., University of California, Berkeley, 1963; Ph.D., University of Kansas, 1969. (1970-1976)

Jeanne Wendel,* Ph.D, Visiting Assistant Professor of Economics.
Ph.D., Southern Methodist University, 1977. (1985)

Bud A. West, M.D., Clinical Assistant Professor.
B.S., Utah State University, 1964; M.D., University of Utah, 1968. (1976)

David P. Westfall,* Ph.D., Professor of Pharmacology.
A.B., Brown University, 1964; M.S., West Virginia University, 1966; Ph.D., 1968. (1982)

Kenneth C. Westfield, M.D., Clinical Assistant Professor of Surgery.
M.D., Wayne State University, 1976. (1985)

Terry Charles Weyl, Ph.D., Associate Professor of Psychology.
B.A., University of Denver, 1965; M.A., 1968; Ph.D., University of Nevada, Reno, 1972. (1972)

Brian J. Whalen, B.S.C.E., P.E., Director of Facilities Management.
B.S.C.E., University of Nevada, 1957. (1958-1974)

Stephen W. Wheatcraft,* Ph.D., Associate Professor of Hydrogeology.
B.S., University of Missouri, 1972; M.S., University of Hawaii, 1975; Ph.D., 1979. (1979-1984)

Boyce E. Wheeler, M.S., County Extension Agent-in-Charge, Cooperative Extension Service.
B.S., Idaho State University, 1969; M.S., University of Nevada, Reno, 1972. (1972-1984)

Allen C. White, M.D., Clinical Assistant Professor of Psychiatry.
B.A., Occidental College, 1961; M.D., George Washington University, 1965. (1988)

Linda L. White, M.A., Lexicographer/Editor of Basque Studies Program.
B.A., University of Nevada, Reno, 1971; M.A., 1974. (1985)

Robin S. White, M.D., Assistant Professor of Pediatrics.
B.S., Seattle Pacific College, 1974; B.A., 1974; M.D., University of Nevada, Reno, 1980. (1984)

Anne C. Whitemaine, B.S.N., Safety and Loss Control Officer.
B.S.N., University of Nevada, Reno, 1982. (1989)

Judith A. Whitenack,* Ph.D., Associate Professor of Foreign Languages and Literatures.
B.S., University of Wisconsin-Madison, 1966; M.A., 1970; Ph.D., 1980. (1979-1985)

Donald D. Wicker, M.D., Clinical Assistant Professor.
B.S., University of Wisconsin, 1957; M.D., 1961. (1975)

Paul O. Wiig, M.D., Clinical Professor of Obstetrics and Gynecology. (1986)

William F. Wilborn,* Ph.D., Associate Professor of English and American Literature.
A.B., Stanford University, 1966; Ph.D., Cornell University, 1976. (1971-1981)

Allen R. Wilcox,* Ph.D., Professor of Political Science
B.A., University of Chicago, 1962; M.A., Northwestern University, 1964; Ph.D., 1970. (1967-1979)

Sandra J. Wilde,* Ph.D., Assistant to the Dean/Assistant Professor of Curriculum and Instruction.
B.A., Carleton College, 1968; M.Ed., University of Toronto, 1977; Ph.D., University of Arizona, 1986. (1988)

Leah J. Wilds,* Ph.D., Assistant Professor of Political Science.
M.A., Colorado State University, 1983; Ph.D., Colorado State University, 1988. (1988)

John D. Wilkes, M.D., Clinical Associate Professor.
B.S., University of Washington, 1952; M.D., George Washington University, 1956. (1978)

Bruce W. Wilkin, M.D., Clinical Associate Professor.
M.D., University of Alabama, 1976. (1983)

Joseph D. Wilkin, M.D., Clinical Assistant Professor.
M.D., University of Alabama, 1978. (1983)

Carl N. Williams, Jr., M.D., Clinical Associate Professor of Surgery.
B.A., Indiana University, 1972; M.D., 1976. (1986)

Judith C. Williams, Ed.D., Senior Research Consultant in Educational Leadership.
B.A., Fresno State University, 1958; M.A., California State University at San Jose, 1973; Ed.D., University of Nevada, Reno, 1988. (1988)

Lynne D. Williams, B.A., Assistant Director of Public Relations, School of Medicine.
A.B., San Jose State College, 1959; B.A., 1959. (1985)

Pearl A. Williams, M.D., Clinical Assistant Professor.
A.B., University of California, Berkeley, 1929; M.D., Meharry Medical College, 1935. (1976)

Richard J. Williams, M.S., Area Extension Agent, Cooperative Extension Service.
B.S., University of Idaho, 1963; M.S., 1980. (1982)

Ronald R. Williams,* D.Mus., Professor of Music.
B.M., DePauw University, 1949; M.M., Indiana University, 1952; M.M., 1955; D.Mus., 1963. (1959-1969)

John S. Williamson, M.D., Clinical Assistant Professor.
A.B., Stanford University, 1968; M.D., 1972. (1981)

Glee M. Willis, M.L.S., Librarian.
B.A., University of California at Davis, 1981; M.L.S., University of California at Berkeley, 1982. (1988)

Graham M. Wilson, M.D., Clinical Assistant Professor of Internal Medicine.
M.D., University of Witwatersrand, Johannesburg, South Africa, 1975. (1988)

George A. Winch, Jr., M.D., Clinical Assistant Professor of Family and Community Medicine.
M.D., Jefferson Medical College, 1981. (1985)

Cheryl P. Winder, M.D., Clinical Assistant Professor of Pediatrics.
B.S., Northern Arizona University, 1976; M.D., University of Nevada School of Medicine, 1982. (1989)

James Winder, M.D., Clinical Assistant Professor of Pediatrics.
B.S., University of Nevada, 1978; M.D., University of Nevada School of Medicine, 1982. (1989)

Herman Wing, M.D., Clinical Assistant Professor of Internal Medicine.
B.A., University of Maine, 1943; M.D., University of Texas, S.W., 1950; L.L.B.-J.D., University of Texas Law School, 1974. (1986)

Ilga B. Winicov,* Ph.D., Associate Professor of Biochemistry.
B.A., University of Pennsylvania, 1956; M.S., University of Wisconsin, 1958; Ph.D., University of Pennsylvania, 1971. (1979-1985)

Peter Winkler,* Dr.H.B., Professor of Physics.
B.S., University of Frankfurt, 1962; M.S., 1966; Ph.D., University of Erlangen-Nurnberg, 1969; Dr.H.B., 1977. (1979)

Burchard E. Winne, M.D., Clinical Assistant Professor of Surgery.
M.D., Loyola University, 1949. (1985)

Donald W. Winne, LL.B.-J.D., Assistant Professor of Managerial Sciences.
B.S. in Bus. Adm., Olivet Nazarene College, 1952; B.A., 1953; LL.B.-J.D., University of Illinois, 1955. (1973)

*Graduate faculty.

Eric H. Winter, M.D., Clinical Instructor of Surgery.
M.D., Columbia College of Physicians and Surgeons, 1983. (1985)

Robert L. Winzeler,* Ph.D., Professor of Anthropology.
B.A., Kent State University, 1963; M.A., University of Chicago, 1966; Ph.D., 1970. (1969-1983)

G.H. Wirges, M.D., Clinical Assistant Professor of Family Medicine.
M.D., University of Saskatchewan, Canada, 1963. (1989)

Richard A. Wirtz,* Ph.D., Professor of Mechanical Engineering.
B.S.M.E., Newark College of Engineering, 1966; M.S., Rutgers-The State University, 1968; Ph.D., 1971. (1986)

Edward F. Wishart,* Ph.D., Professor of Mathematics and Computer Science.
B.S., University of Nevada, 1959; M.S., Florida State University, 1961; Ph.D., 1965. (1965-1970)

Donald S. Wnek, B.S.E., Assistant Football Coach, Intercollegiate Athletics.
B.S.E., Northern Illinois University, 1974. (1982)

Milton T. Wolf, A.M.L.S., Collection Development Librarian.
B.A., Pennsylvania State University, 1968; A.M.L.S., University of Michigan, 1969. (1977)

Samuel D. Wood, B.A.L.S., Librarian.
B.S. in Ed., University of Oklahoma, 1949; B.A.L.S., 1951. (1961-1971)

Terry S. Woodin,* Ph.D., Associate Professor of Biochemistry.
B.A., Alfred University, 1954; M.A., University of California, Davis, 1964; Ph.D., 1967. (1968-1979)

Leonard D. Woods, M.S., Financial Aid Officer.
B.S., Northern Michigan University, 1971; M.S., University of Utah, 1974. (1989)

Cyril M. Worby, M.D., Professor of Psychiatry and Behavioral Sciences and Family and Community Medicine.
B.S., Antioch College, 1952; M.D., University of Rochester, 1956. (1984)

Marsha F. Worby, Ph.D., Assistant Professor of Family and Community Medicine.
B.A., Antioch College, 1951; M.S.S., Smith College, 1954; Ph.D., Michigan State University, 1985. (1985)

Charlotte J. Word, Development Officer, Instructional Media Services. (1986)

John Wright, M.A., Instructor, Intensive English, Continuing Education.
B.A., Samford University-Alabama, 1977; M.Div., Southern Baptist Seminary, 1983; M.A., Indiana University, 1985. (1989)

Jeffrey A. Wrightson, M.D., Clinical Assistant Professor, Obstetrics and Gynecology.
M.D., Oregon Health Science University, Portland, 1983. (1987)

Michael Wurm, Assistant Basketball Coach, Intercollegiate Athletics. (1987)

Wom-Bin Yim, D.M.A., Assistant Professor of Music.
B.M., Peabody Conservatory, 1978; M.M., The Julliard School, 1981; D.M.A., 1989. (1986)

James Yoakum,* Adjunct Professor of Range, Wildlife and Forestry. (1986)

Denise York, M.S., Nevada State Demographer, Bureau of Business and Economic Research.
B.S., University of Nevada, Reno, 1982; M.S., North Carolina University, 1984. (1988)

B. Lee Young, Associate Professor of Military Science. (1985)

David G. Young, Jr., M.D., Clinical Associate Professor.
B.S., Elizabethtown College, 1944; M.D., Hahnemann Medical College, 1946; M.S., University of Pennsylvania, 1962. (1975)

James A. Young,* Ph.D., Adjunct Professor of Range, Wildlife and Forestry.
B.S., Chico State College, 1958; M.S., North Dakota State University, 1962; Ph.D., Oregon State University, 1965. (1967-1972)

Martina Linda Young, B.F.A., Lecturer of Dance.
B.F.A., California Institute of the Arts, 1978. (1988)

Norman Young, M.D., Clinical Assistant Director of Surgery.
M.D., Chicago Medical School, 1976. (1984)

Richard L. Young, M.D., Clinical Assistant Professor, Obstetrics and Gynecology.
B.A., Lewis and Clark College, 1970; B.S., University of South Dakota School of Medicine, Vermillion, 1974; M.D., Emory University, Atlanta, 1976. (1987)

Terrance S. Young, M.D., Clinical Assistant Professor of Pathology.
B.A., San Jose State University, 1978; M.D., University of California, San Diego School of Medicine, 1983. (1989)

Theodore W. Young, Ph.D., Assistant Professor of Psychiatry and Behavioral Science.
B.A., Fresno State College, 1974; M.A., 1977; Ph.D., University of Hawaii, 1982. (1983)

Mimi Yu, M.A., Lecturer of Foreign Languages.
B.A., Fu-Jen Catholic University, 1986; M.A., University of Wisconsin, 1989. (1989)

Gary L.Yup, M.D., Clinical Assisrant Professor of Pediatrics.
B.S., University of Nevada, Reno, 1978; M.D., 1983. (1988)

Esmail D. Zanjani, Ph.D., Professor of Internal Medicine and Physiology.
Ph.D., New York University, 1969. (1987)

Sally S. Zanjani, Ph.D., Adjunct Assistant Professor of Political Science.
B.A., New York University, 1964; M.A., 1967; Ph.D., 1974. (1976)

Jerry N. Zebrack, M.D., Clinical Assistant Professor.
B.A., University of Southern California, 1961; M.D., University of California, Los Angeles, 1965. (1972)

Charles D. Zeier, M.A., Adjunct Lecturer in Anthropology. (1986)

Steven C. Zell, M.D., Assistant Professor of Internal Medicine.
M.D., University of California at Irvine, 1981. (1985)

Joan S. Zenan, M.L.S., Director and Librarian of Savitt Medical Library.
B.A., University of California, Los Angeles, 1965; M.L.S., 1967. (1976-1980)

Michael J. Zigich, M.D., Clinical Assistant Professor, Surgery.
B.S., University of Nevada, Reno, 1973; M.S., Cornell University, Ithaca, 1975; M.D., University of Nevada School of Medicine, 1982. (1987)

Gordon I. Zimmerman, Jr.,* Ph.D., Associate Professor of Speech and Theatre.
B.S., University of Oregon, 1965; M.A., University of Arizona, 1966; Ph.D., University of Minnesota, 1973. (1967-1977)

Steven D. Zink, M.L.S., Librarian.
B.S., Indiana State University, 1974; M.A., University of Wisconsin, 1975; M.L.S., Louisiana State University, 1979. (1980-1984)

Aaron Zivot, M.D., Clinical Associate Professor.
B.A., University of British Columbia, 1947; B.S.W., 1948; M.D., University of Manitoba, 1959. (1982)

David A. Zucker, M.D., Clinical Assistant Professor.
B.A., Yale University, 1972; M.D., Tufts University, 1976. (1983)

Reuben Zucker, M.D., Clinical Associate Professor.
B.A., Yale University, 1941; M.D., 1944. (1976)

Joseba Zulaika, Ph.D., Adjunct Professor of Basque Studies.
M.A., Memorial University of Newfoundland, 1977; Ph.D., Princeton University, 1982. (1984)

Charles W. Zumpft, M.D., Clinical Assistant Professor, Internal Medicine.
B.S., University of Ohio, Columbus, 1956; M.D., Ohio State University, Columbus, 1960. (1987)

Richard M. Zweig, M.D., Assistant Professor of Internal Medicine.
M.D., Case Western Reserve University, 1978. (1987)

Retired

Bernard A. Anderson, Ph.D., Professor of Speech, Emeritus.

Fred M. Anderson, M.D., Clinical Professor of Surgery, Emeritus.

James T. Anderson, Ph.D., Vice President for Academic Affairs and Professor of Engineering, Emeritus.

William R. Arnett,* Ph.D., Professor of Plant Science, Emeritus.

John L. Artz, M.S., Associate Director of Cooperative Extension Service, Emeritus.

John A. Bailey,* Ed.D., Professor of Counseling and Guidance Personnel Services, Emeritus.

Arthur Baker III,* Ph.D., Dean of Mines, Emeritus.

DeWitt C. Baldwin, Jr., M.D., Professor of Psychiatry and Behavioral Sciences, Emeritus.

James D. Barger, M.D., Clinical Professor of Pathology/Laboratory Medicine, Emeritus.

Edmund R. Barmettler,* Ph.D., Professor of Agricultural Economics, Emeritus.

George Barnes,* Ph.D., Professor of Physics, Emeritus.

Roberta J. Barnes, Ph.D., Dean of Student Services, Emeritus.

Charles P. Bartl,* Ph.D., Professor of Educational Foundations and Media, Emeritus.

Samuel M. Basta, Ed.D., Professor, College of Education and Dean of Students, Emeritus.

Fred C. Batchelder, M.S., Extension Agent, Lyon County, Cooperative Extension Service, Emeritus.

E. Maurice Beesley,* Ph.D., Professor of Mathematics, Emeritus.

William C. Behrens, M.S., Extension Professor of Animal Science, Emeritus.

Emanuel Berger, M.D., Clinical Assistant Professor of Pediatrics, Emeritus.

Elizabeth Bernheimer, M.P.H., Health Educator and Assistant Professor, Family and Community Medicine, Emeritus.

Lena H. Berry, B.S., Home Agent, Churchill County, Emeritus.

Juan M. Bilbao, M.A., Basque Studies Bibliographer, Emeritus.

Clifton R. Blincoe, Ph.D., Professor of Biochemistry, Emeritus.

Verle R. Bohman,* Ph.D., Professor of Animal Science, Emeritus.

Dale W. Bohmont,* Ph.D., Dean and Director of Agriculture, Emeritus.

John A. Bonell,* M.S., P.E., Professor of Civil Engineering, Emeritus.

*Graduate faculty

Roscoe M. Booth,* Ed.D., Professor of Music, Emeritus.

Frank W. Bowdish,* Ph.D., P.E., Professor of Chemical Engineering, and Mineral Technologist, Nevada Mining Analytical Laboratory, Emeritus.

Darwin E. Bradfield, B.S., County Extension Agent-in-Charge, Emeritus.

Harry H. Bradley, Sr., B.S., Lecturer and Coordinator of Community Development, Emeritus.

Charles R. Breese, Sr.,* M.S., P.E., Professor and Dean of Engineering, Emeritus.

George A. Broten,* Ed.D., Professor of Recreation and Physical Education, Emeritus.

Russell Wilfrid Brown, Ph.D., Distinguished Professor of Microbiology, Assistant to the Dean.

Allen D. Bruner, M.S., Agricultural Development Specialist.

Ferren W. Bunker, B.S., County Extension Agent-in-Charge, Cooperative Extension Service, Emeritus.

Eleanore Bushnell, Professor of Political Science, Emeritus.

John N. Butler, M.S., Professor of Metallurgy, Emeritus.

Theodore A. Butler, M.A., Associate Professor of Agricultural and Industrial Mechanics, Emeritus.

Edmund J. Cain,* Ed.D., Dean and Professor of Education, Emeritus.

John W. Callister, M.D., Clinical Associate Professor of Pathology and Laboratory Medicine, Emeritus.

Hilda G. Cao, M.L.S., Librarian.

Beth W. Carney, M.A., Lecturer in Foreign Languages and Literatures, Emeritus.

Clayton Carpenter, P.E.E., Physical Plant Engineer, Emeritus.

Kenneth J. Carpenter, M.A., Librarian, Emeritus.

Harry M. Chase, Jr.,* Ph.D., Professor of Political Science, Emeritus.

Americo Chiarito, M.L.S., Librarian, Emeritus.

Howard H. Christensen, Ph.D., Associate Professor of Industrial Mechanics, Emeritus.

Rodney V. Connor,* Ph.D, Associate Professor of English, Emeritus.

Theodore E. Conover, M.A., Professor of Journalism, Emeritus.

Elisabeth J. Constantino, M.A., Lecturer in Mathematics, Emeritus.

Jack H. Cook, M.A., Head Track and Cross Country Coach, Intercollegiate Athletics.

Thomas W. Cook, B.S., Area Extension Agent, Indian Programs, Cooperative Extension Service, Emeritus.

Donald G. Cooney,* Ph.D., Professor of Biology, Emeritus.

Howard P. Cords, Ph.D., Professor of Agronomy and Agronomist, Emeritus.

Richard V. Cotter,* Ph.D., Professor of Managerial Sciences, Emeritus.

Raymond C. Cox, M.S., State Management and Operations Officer, Emeritus.

Harold E. Cude, B.S., Assistant Professor of Engineering Technologies, Emeritus.

Albin J. Dahl, Ph.D., Professor of Economics and Research Analyst in the Bureau of Business and Economic Research, Emeritus.

Alex di C. Dandini, D.S.L., D.H.E., Ph.D., Sc.D., Consultant to Engineering Research and Development Center and Professor of Foreign Languages and Literatures, Emeritus.

Lillian Dangott,* Ph.D., Associate Professor of Social and Health Resources, Emeritus.

Richard T. Dankworth, Ed.D., Vice President for University Advancement, Emeritus.

Dana J. Davis,* Ed.D., Professor of Curriculum and Instruction, Emeritus.

J. Kirk Day, B.S., County Extension Agent-in-Charge, Humboldt and Northern Lander Counties, Emeritus.

Warren L. d'Azevedo,* Ph.D., Professor of Anthropology, Emeritus.

Arnold J.R. DeAngelis,* M.S., Associate Professor of Civil Engineering, Emeritus.

Meryl William Deming, Ph.D., Professor of Chemistry, Emeritus.

Robert E. Diamond,* Ph.D., Professor of English, Emeritus.

Alene R. Dickinson,* Ed.D., Professor of Nursing, Emeritus.

David F. Dickinson, Ph.D., P.E., Professor of Electrical Engineering, Emeritus.

Martin H. Dickstein, M.S., Assistant Catalog Librarian, Emeritus.

A.J. Dingacci, M.D., Clinical Associate Professor, Emeritus.

Wendell H. Dodds, A.M., Manager, Radio and Television, Emeritus.

Grace M. Donehower, M.A., Associate Director of Off-Campus Programs and Independent Study, Emeritus.

Ruth H. Donovan, B.L.S., Associate Director of Libraries, Emeritus.

Earl L. Drake, D.V.M., Extension Professor of Veterinary Medicine, Emeritus.

Don W. Driggs,* Ph.D., Professor of Political Science, Emeritus.

Kathryn H. Duffy, S.J.D., Professor of Managerial Sciences, Emeritus.

Laraine E. Dunn, Ph.D., Associate Professor of Biochemistry and Soil Science, and Associate Research Chemist, Emeritus.

Mabel I. Edmundson, B.S., County Extension Agent in Home Economics, Emeritus.

Russell R. Elliott,* Ph.D., Professor of History, Emeritus.

Marjorie J. Elmore,* Ed.D., Professor of Nursing, Emeritus.

John W. Erwin,* M.S., P.E., Geophysicist and Professor of Geophysics, Emeritus.

Katherine E. Everson, Spec. in Ed., County Extension Agent in Home Economics, Emeritus.

Charles F. Fell, M.S., P.E., Professor of Electrical Engineering, Emeritus.

Georgia N. Felts, B.S., Home Agent, Eureka and White Pine Counties

Herbert D. Fine, B.S., Assistant Professor of Mining Engineering and Assistant Mining Engineer, Emeritus.

Thomas V. Frazier, Ph.D., Professor of Physics, Emeritus.

Paule-Colette Fricke,* Ph.D., Associate Professor of Foreign Languages and Literatures, Emeritus.

Paule T. Fricke,* Ph.D., Associate Professor of Foreign Languages and Literatures.

Louie A. Gardella, B.S., Extension Agent, Washoe County, Emeritus.

Philip J. Gillette, M.P.H., Assistant to the Dean, Medical School and Lecturer of Managerial Sciences, Emeritus.

William A. Gilstrap, M.S., Assistant Professor of Mechanical Engineering, Emeritus.

Mary Ellen Glass, M.A., Oral Historian, Emeritus.

Harold Goddard,* M.M., Professor of Music, Emeritus.

Robert M. Gorrell,* Ph.D., Vice President for Academic Affairs and Professor of English, Emeritus.

John Gottardi, M.A., Professor of Foreign Languages, Emeritus.

Don A. Greenwell, M.S., County Extension Agent-in-Charge, Cooperative Extension Service, Emeritus.

Robert S. Griffin, Ph.D., Professor of Speech and Drama, Emeritus.

Lucille R. Guckes,* Ed.D., Professor of Curriculum and Instruction, Emeritus.

Cyrus O. Guss, Ph.D., Professor of Chemistry, Emeritus.

Ronald H. Gustafson, M.S., Chairman, Western Extension Area, Emeritus.

E. Irving Hackett, M.S., State Extension Specialist, Cooperative Extension Service, Emeritus.

Margarete Hagner, M.A., Lecturer in Foreign Languages and Literatures, Emeritus.

Andrew A. Halacsy,* Ph.D., P.E., Professor of Electrical Engineering, Emeritus.

M. Henry Hattori, B.B.A., Controller, Emeritus.

M. Gertrude Hayes, B.S., Home Agent, Washoe County, Emeritus.

George Herman, A.M., Lecturer in English, Emeritus.

Nancy R. Hooper, Ph.D., Assistant Professor of English, Emeritus.

Marilyn J. Horn, Ph.D., Professor of Home Economics, Emeritus.

Willem Houwink, Ph.D., Professor of Economics, Emeritus.

Shirley F. Howard, M.Ed., Associate Professor of Nursing, Emeritus.

James M. Hoyt, M.B.A., Professor of Accounting and Information Systems, Emeritus.

Ralph A. Irwin, Ph.D., Administrative Vice President and Professor of Psychology, Emeritus.

Kenneth D. Jessup, M.S., Lecturer in Mathematics, Emeritus.

Austin E. Jones, M.S., Research Associate in Seismology.

Winthrop G. Jones, M.S.E.E., Assistant Professor of Engineering Technologies.

A.Z. Joy, M.S., County Extension Agent-in-Charge, Cooperative Extension Service, College of Agriculture, Emeritus.

John B. Kaye,* D.B.A., Lecturer in Managerial Sciences, Emeritus.

*Graduate faculty.

J. Patrick Kelly,* Ph.D., Professor of Curriculum and Instruction, Emeritus.

Robert L. Kersey, B.S., Recruitment and Special Facilities Administrator, Sierra Nevada Job Corps Center, Emeritus.

Earl W. Kersten, Jr.,* Ph.D., Professor of Geography, Emeritus.

Henry M. Kilpatrick, M.S., Range Extension Specialist, Churchill County, Cooperative Extension Service, Emeritus.

Gerald W. Kimble,* Ph.D., Professor of Mathematics and Computer Science, Emeritus.

Edgar F. Kleiner,* Ph.D., Associate Professor of Biology, Emeritus.

Donald A. Klenbenow,* Ph.D., Professor of Range, Wildlife and Forestry, Emeritus.

Lawton B. Kline, Ph.D., Associate Professor of Foreign Languages, Emeritus.

Jack Knoll,* Ph.D., Professor of Biology, Emeritus.

Owen A. Knorr, Ph.D., Professor of Biology, Emeritus.

Eugene V. Kosso,* M.S.E.E., P.E., Professor of Electrical Engineering and Computer Science, Emeritus.

Frank R. Krajewski, Ph.D., Associate Professor of Educational Leadership, Emeritus.

Robert W. Lauderdale, B.S., Extension Entomologist, Biochemistry, Associate Professor of Entomology, Emeritus.

Ivan Lee, M.S., Lecturer in Curriculum and Instruction, Emeritus.

Rosella Linskie, Ph.D., Professor of Curriculum and Instruction, Emeritus.

Joseph Lintz, Jr.,* Ph.D., Professor of Geology, Emeritus.

C. Robert Locke, M.D., Director of Student Health Service, Emeritus.

Joan W. Logan, M.S. in Ed., Reading Specialist, Sierra Nevada Job Corps Center.

Catherine C. Loughlin, M.A., Associate Professor and Extension Specialist of Home Economics, Emeritus.

Edward E. Loveless,* Ed.D., Professor of Educational Administration and Higher Education, Emeritus.

Geroline C. Lunsford, B.S.E., Area Extension Chairman, Cooperative Extension Service, Emeritus.

Ernest W. Mack, M.D., Clinical Professor of Surgery, Emeritus.

Kenneth F. Maclean, M.D., Clinical Professor of Surgery, Emeritus.

Robert A. Manhart,* Ph.D., P.E., Professor of Electrical Engineering, Emeritus.

Lindley Manning, M.S.M.E., Associate Professor of Mechanical Engineering, Emeritus.

Donald W. Marble,* D.V.M., Extension Professor of Veterinary Medicine, Emeritus.

Barbara Jean Margerum,* M.S., State Extension Specialist and Associate Professor of Home Economics, Emeritus.

Joseph H. Marion, County Extension Agent-in-Charge, Emeritus.

Alice B. Marsh, M.S., Associate Professor of Home Economics, Emeritus.

Emory L. Marshall, B.S., Extension Agent-in-Charge, Cooperative Extension Service, Emeritus.

Wayne S. Martin, Ed.D., Director, Continuing Education, Emeritus.

David H. Mathis, M.A., Editor, College of Agriculture, Emeritus.

Robert McQueen,* Ph.D., Professor of Psychology and Director of Scholarships, Emeritus.

Paul W. McReynolds,* Ph.D., Professor of Psychology, Emeritus.

Mark W. Menke, B.S., Extension Agent, Elko County, Emeritus.

William C. Metz, M.S., Associate Professor of Journalism, Emeritus.

Eugene Miller,* Ph.D., Professor of Chemical Engineering, Emeritus.

Melvin P. Miller, B.S., County Extension Agent-in-Charge, Lincoln County.

Wayne L. Miller, M.P.E., Assistant Professor of Chemical Engineering, Emeritus.

William C. Miller, Ph.D., Professor of Speech and Drama, Emeritus.

Leo L. Mimno, Business Manager, Lawlor Events Center.

E. Marie Morgan, B.S., County Extension Home Economist, Emeritus.

John W. Morrison,* Ph.D., Professor of English, Emeritus.

Z. Iona Mowrer, M.S., Associate Professor of Recreation and Physical Education, Emeritus.

Hugh N. Mozingo,* Ph.D., Professor of Biology and Experiment Station Biologist, Emeritus.

Alan V. Mundt, M.S., Resource Assistant in Education, Emeritus.

James K. Murphy, Grants and Contracts Administrator, Emeritus.

John E. Nellor,* Ph.D., Dean of the Graduate School and Professor of Biology, Emeritus.

Harve P. Nelson, Ph.D., Professor of Mining Engineering, Emeritus.

Norman E. Nichols, B.S., Livestock Extension Agent and County Extension Agent, Emeritus.

Chauncey W. Oakley, M.Ed., Lecturer in Mathematics, Emeritus.

Thomas D. O'Brien, Ph.D., Dean of the Graduate School and Professor of Chemistry, Emeritus.

Ronald W. Ogilvie, B.S., Accountant, Emeritus.

James Olivas, Boxing Coach.

Dan L. Oppleman, Ed.D., Professor of Medical Education, Emeritus.

Richard G. Orcutt,* Ph.D., Professor of Civil Engineering, Emeritus.

Roberta K. Orcutt, B.L.S., Librarian, Emeritus.

Maurica G. Osborne, M.L.S., Life and Health Science Librarian, Emeritus.

Arleen C. Otto,* Ed.D., Professor of Home Economics, Emeritus.

Richard M. Palcanis, B.S.L.S., Librarian, Emeritus.

Walter S. Palmer, Jr., Ph.D., Professor of Accounting and Information Systems, Emeritus.

Keith G. Papke, M.S., Economic Geologist, Emeritus.

Arthur T. Phelps, Ph.D., Professor of Curriculum and Instruction, Emeritus.

Edward L. Pine, C.E., Vice President for Business, Emeritus.

Chester F. Pinkerton, M.S., Lecturer in Mathematics, Emeritus.

Alden J. Plumley, M.A., Professor of Economics, Emeritus.

Donald G. Potter, Ed.D., Director and Professor of Audio-Visual Communications, Emeritus.

John H. Pursel, M.S., Atea Extension Chairman, Cooperative Extension Service, College of Agriculture, Emeritus.

William E. Rasmussen, M.Ed., Director of Financial Aid, Student Placement and Veterans Services, Emeritus.

R. Borden Reams, Director of Development and Ambassador in Residence, Emeritus.

Calvin H. Reed, Ph.D., Professor of Education, Emeritus.

James S. Roberts,* Ph.D., Professor of Political Science, Emeritus.

Joseph H. Robertson, Ph.D., Professor of Range Ecology, Emeritus.

Gayland D. Robison, Ph.D., Extension Agent-in-Charge, Cooperative Extension Service, College of Agriculture, Emeritus.

Robert T. Roelofs, Ph.D., Professor of Philosophy, Emeritus.

LaVerne B. Rollin, A.B., Associate Technical Editor, Nevada Bureau of Mines and Geology, Emeritus.

Elmer R. Rusco,* Ph.D., Professor of Political Science, Emeritus.

John Torney Ryan, Shop Superintendent and Instructor, Engineering Shops, Emeritus.

Fred A. Ryser, Jr., Ph.D., Professor of Biology, Emeritus.

Kenneth Sakurada, M.S., Assistant Director of Cooperative Extension Service, College of Agriculture, Emeritus.

Vasco A. Salvadorini, M.D., Clinical Professor of Pathology, Emeritus.

Irving Jesse Sandorf, M.S., Professor of Electrical Engineering, Emeritus.

John H. Schilling, M.S., Director and Mining Geologist, Nevada Bureau of Mines and Geology, Emeritus.

Marion M. Schrum, Ed.D., Dean, Orvis School of Nursing, Emeritus.

R. Grant Seals, Ph.D., Special Assistant to the Vice President for Academic Affairs.

Clarence M. Skau,* Ph.D., Professor of Range, Wildlife and Forestry, Emeritus.

William T. Scott, Ph.D., Professor of Physics, Emeritus.

Jack B. Selbig, M.Ed., Director, Counseling and Testing and Foreign Student Adviser, Emeritus.

C. Eugene Shepherd, Lecturer in Physics, Emeritus.

Jack H. Shirley, Ed.D., Director of Admissions and Registrar, Emeritus.

David B. Slemmons,* Ph.D., Director of Center for Neotectonic Studies and Professor of Geology and Geophysics, Emeritus.

Benjamin L. Smith, M.B.A., C.P.A., Professor of Accounting and Information Systems, Emeritus.

*Graduate faculty.

Harry G. Smith, Jr.,* Ph.D., Professor of Biochemistry, Emeritus.

LaMar R. Smith, M.L.S., Education Librarian, Emeritus.

William K. Sonnemann, B.A., Publications Editor, Agricultural Communications, Emeritus.

Jackson M. Spencer, M.A., Assistant Basketball Coach, Intercollegiate Athletics.

Victor E. Spencer, M.S., Soils Research Chemist, Experiment Station.

Loyd L. Stitt, M.S., Associate Pesticide Specialist, Biochemistry, Emeritus.

Mildred Swift, M.S., Professor of Home Economics, Emeritus.

James O. Thompson, B.S., Director, Planned Giving and Scholarships.

Teddy R. Tower,* Ph.D., Professor of Curriculum and Instruciton, Emeritus.

Richard M. Trachok, M.Ed., Director, Intercollegiate Athletics, Emeritus.

Walter J. Treanor, M.D., Clinical Professor of Internal Medicine, Emeritus.

John H. Trent,* Ed.D., Professor of Curriculum and Instruction, Emeritus.

Len Lawrence Trout, Jr., Ed.D., Director, Research and Educational Planning Center, Emeritus.

Emile Van Remoortere,* M.D., Professor of Pharmacology, Emeritus.

William V. Van Tassel, M.S., P.E., Professor of Mechanical Engineering, Emeritus.

Walter H. Voskuil, Ph.D., Distinguished Visiting Professor of Mineral Economics, Emeritus.

Rosaline H. Weaver, M.B.A., Grant and Contract Administrator, Emeritus.

Robert C. Weems, Jr., Ph.D., Professor and Dean of the College of Business Administration; Director of the Bureau of Business and Economic Research, Emeritus.

Howard J. Weeth,* Ph.D., Professor of Physiology and Animal Science, Physiologist, Emeritus.

Frits W. Went, Ph.D., Distinguished Professor of Botany, Professor of Botany, Emeritus.

Eric S. White, M.S., Assistant Professor of Engineering Technologies.

Paul O. Wiig, M.D., Clinical Professor of Obstetrics/Gynecology, Emeritus.

Richard E. Wilson,* Ph.D., Associate Professor of Economics, Emeritus.

Harry J. Wolf, M.Ed., Director of Career Planning and Placement.

R. Edwin Worley, Ph.D., Professor of Physics, Emeritus.

Charles R. York, Sr., B.S., County Extension Agent-in-Charge, Churchill County, Emeritus.

Ralph A. Young,* Ph.D., Professor of Soil Science, Emeritus.

Edward A. Zane,* Ph.D., Professor of Accounting and Information Systems, Emeritus.

*Graduate faculty.

Campus Buildings and Names

Anderson Medical Sciences
Fred M. Anderson, M.D., (1906-), Reno physician and surgeon, member of the board of regents, 1956-1978. Anderson was instrumental in helping establish the School of Medicine.

Edna S. Brigham Clinical Education Building/Family Medicine Center
Edna S. Brigham, director of the University of Nevada Sysrem Endowment and formerly development officer at the School of Medicine from 1976 to 1983. The building was dedicated in 1986.

Robert Cashell Field House
Robert A. Cashell, northern Nevada businessman active in many community organizations; Honorary Alumnus (1976); member of the board of regents (1979-1982); Lieutenant Governor for the State of Nevada (1983-1987); Distinguished Nevadan Award (1988).

Church Fine Arts Complex
James Edward Church (1869-1959), professor of Latin, German, classical art, and histoty, 1892-1959. Developed the first snow surveying techniques, which led to the science of evaluating regional warer storage. Also developed system of analyzing avalanche hazards. Brought worldwide scientific honor to the University of Nevada. The building was remodeled and expanded in 1986.

Clark Administration
Alice McManus Clark, native Nevadan, wife of William A. Clark, Jr., son of a Montana senator who built railroads in southern Nevada. Mrs. Clark gave several scholarships to the university. After her death, her husband donated the Clark Library in her name (1926). This building was the cultural and research center of the university for more than three decades until the library moved to its present location in 1962.

Fleischmann Agriculture (Fleischmann College of Agriculture)
Fleischmann Greenhouse
Fleischmann Life Science
(*See also:* Fleischmann Planetarium and Sarah H. Fleischmann Building)
Max C. Fleischmann (1877-1951), Nevada philanthropist, food industry millionaire (Standard Brands), benefactor of the university with gifrs of land, scholarships and endowments. From the Max C. Fleischmann Foundation established by Fleischmann for the purpose of distributing his wealth, came the funds to construct the College of Agriculture and School of Home Economics, and, later, the life science wing of the agriculture building. The Fleischmann Foundation contributed further millions to the university in gifts, scholarships, and assistance in establishing the Computing Center, Laboratory in Environmental Patho-Physiology, Fleischmann Planetarium, Desert Research Institute, the Water Resources Building, and the Judicial College Building.

Fleischmann Planetarium (Charles and Henriette Fleischmann Planetarium) Named for the parents of Max C. Fleischmann.

Frandsen Humanities (Formerly Agriculture Building)
Named for *Peter Frandsen*, (1876-1967), founder of the biology department; professor of biology, zoology, embryology, anatomy, bacteriology, 1900-1942.

Getchell Library
Noble H. Getchell (1875-1960), Nevada mining man, state senator.

Hartman Hall
Leon W. Hartman (1876-1943), professor of physics, 1908-1938; president of the University of Nevada, 1938-1943.

Howard Medical Sciences
Claude I. Howard, Las Vegas businessman and major benefactor of the School of Medicine; credited with enabling the medical program to develop into an accredited four-year medical school. Named a Distinguished Nevadan in 1979; awarded an Honorary Degree in 1982. The building was dedicated in 1982.

Jones Visitor Center
Clarence K. and Martha H. Jones provided an endowment that preserved the Old Journalism Building, constructed in 1914 as the UNR Library and dedicated in 1983 as the Visitor Center. Jones is an investment counselor and former Reno Newspapers executive. He was named a Distinguished Nevadan in 1977. Martha, the former Martha Washington Hansen, received the President's Medal in 1985.

Jot Travis Student Union
Ezra "Jot" Travis, early Western stagecoach company manager. His son, Wesley E. Travis, born in Hamilton, Nevada, bequeathed funds (1952) to the university for a student facility to be named for his father.

Knudtsen Resources Center
Molly Flagg Knudtsen, ranch owner near Austin, Nevada; member of the board of regents for 18 years (1960-1972 and 1974-1980). Born in New York, Mrs. Knudtsen came to Nevada in 1942, wrote about central Nevada ranches in her book "Here is Our Valley," and has also been published in several journals under the name of Molly Magee.

Lawlor Events Center
Glenn "Jake" Lawlor (1907-1980), one of UNR's best-known athletes and coaches. He played and coached football, basketball, tennis, golf, baseball, and track. Lawlor was also the university's athletic director (1959-1970).

Laxalt Mineral Engineering Center
Paul D. Laxalt (1922-), governor of the state of Nevada, 1967-1971. United States senator, 1974-1987.

Leifson Physics
Sigmund W. Leifson (1897-), professor of physics, 1925-1963; chairman of the physics department, 1938-1963. Nationally recognized nuclear physicist; pioneer in the theory of aromic energy.

Lincoln Hall
Abraham Lincoln (1809-1865), sixteenth president of the U.S.

Lombardi Recreation
Louis E. Lombardi, M.D. (1907-), Reno physician and surgeon; member of the board of regents, 1951-1980.

Mack Social Science
Effie Mona Mack (1888-1969), Nevada historian and educator, university benefactor.

Mackay Mines
Mackay Stadium
John W. Mackay (1831-1902), one of the "Big Four" successful mining men of the bonanza days on the Comstock, Virginia City, Nevada. Buildings, land, and endowments were presented to the university in his honor by his widow, Marie Louise, and son, Clarence H. Mackay.

Mackay Science (Mackay Science Hall)
Clarence H. Mackay (1874-1938), New York financier, son of John W. Mackay (see above). Mackay Science Hall, dedicated in 1930, was one of numerous gifts made to the university by Clarence H. Mackay. "Mackay Day," celebrated each spring, is named in his honor.

Manville Medical Sciences
H. Edward Manville, Jr. (1906-1984), industrialist, philanthropist, civic leader, former chairman of the School of Medicine Advisory Board. His estate provided the school with $1 million to establish the H. Edward Manville endowed professorship in internal medicine.

Morrill Hall
Named for the Morrill Land Grant Act of 1862 after *Justin S. Morrill* (1810-1898), U.S. senator from Vermont. The act established the system of land-grant colleges, including, in 1864, the University of Nevada. Completed in 1886, Morrill Hall was the first building erected on the Reno campus of the university. Until 1889 it was the University of Nevada.

Nye Hall
Named for Nye County, Nevada, after *James W. Nye* (1814-1876), Nevada territorial governor, 1861-1864; U.S. senator from Nevada, 1864-1873.

Orvis School of Nursing
Arthur E. Orvis (1888-1965), Nevada adoptive resident, who, with his wife, Mrs. Mae Zenke Orvis, contributed sizable cash sums to the university, making possible the construction (1965-1966) of the School of Nursing.

Palmer Engineering
Stanley G. Palmer (1887-1975), professor of electrical engineering, 1915-1941, dean, College of Engineering, 1941-1957.

Ross Hall
Silas E. Ross (1887-1975), professor of chemistry, 1909-1914; Reno mortician, member of the board of regents, 1932-1956.

Sarah H. Fleischmann Building
Named for Mrs. Max C. Fleischmann.

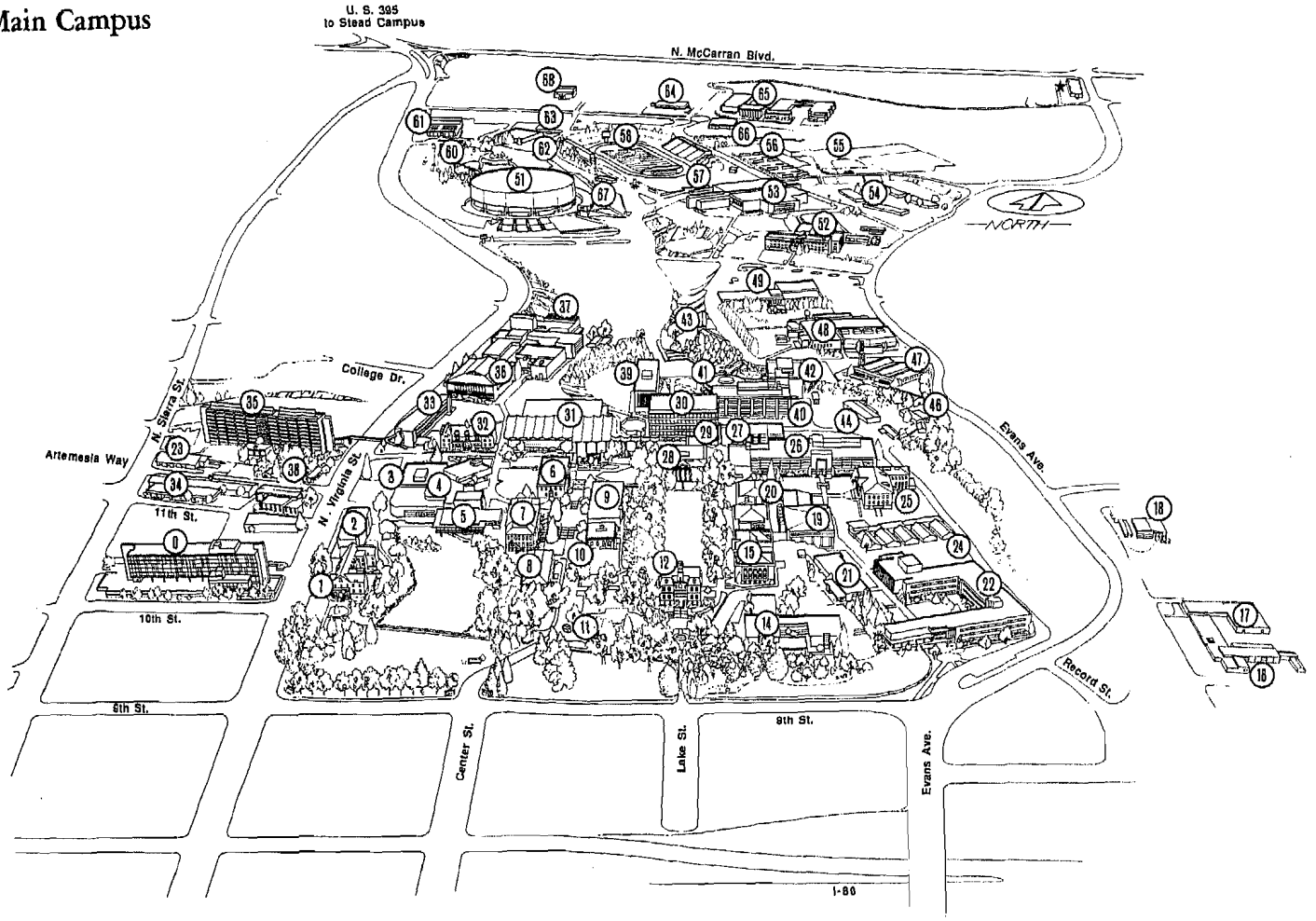
Savitt Medical Sciences
Sol (1898-1981) *and Ella Savitt*, former owners of Sierra News Co. in Reno, longtime university supporters with contributions to the School of Medicine, the medical library, UNR athletics, the journalism department, and various scholarship funds. They were named Distinguished Nevadans in 1977. The building was dedicated in 1977.

Scrugham Engineering-Mines
James G. Scrugham (1880-1945), professor of mechanical engineering, 1913-1914, first dean, College of Engineering, 1914-1916; state engineer; governor of Nevada, 1923-1925; U.S. representative in Congress, 1933-1942; U.S. senator, 1942-1945; newspaper editor, historian.

Thompson Student Services Center (formerly Education Building)
Reuben C. Thompson (1878-1951), professor of ancient languages, literature, and philosophy, 1908-1949; founded department of philosophy, dean of men, 1942-1949.

University of Nevada, Reno

Main Campus



Map Legend

0.	CI	College Inn
1.	MAH	Manzanita Hall
2.	JH	Juniper Hall
2.	JH	Health Service
3.	B	Bookstore
4.	JTU	Jot Travis Student Union
5.	DC	Dining Commons
6.	TSS	Thompson Student Services Center
7.	FH	Frandsen Humanities
8.	CA	Clark Administration
9.	RH	Ross Hall
10.	JVC	Jones Visitor Center
11.	IK	Information Kiosk
12.	MH	Morrill Hall
14.	SFB	Sarah H. Fleischmann Building
15.	MS	Mackay Science
16.	AE	Agricultural Education and 4-H
17.	KRC.	Knudtsen Resource Center
18.	EC	Equestrian Center
19.	LMR	Paul Laxalt Mineral Research Center
20.	LME	Paul Laxalt Mineral Engineering Center
21.	OSN	Orvis School of Nursing
22.	FA	Fleischmann Agriculture
23.	PO	Post Office
24.	FG	Fleischmann Greenhouse
25.	PE	Palmer Engineering
26.	SEM	Scrugham Engineering-Mines
27.	CHP	Central Heating Plant
28.	MM	Mackay Mines
29.	PP	Physical Plant
30.	BB	Business Building
31.	GL	Getchell Library
32.	LH	Lincoln Hall
33.	WPH	White Pine Hall
34.	AB	Artemesia Building
35.	NH	Nye Hall
36.	G	Gymnasium
37.	CFA	Church Fine Arts
38.	WC	Women's Center
39.	MSS	Mack Social Science
40.	CB	Chemistry Building
41.	LB	Lecture Building
42.	LP	Leifson Physics
43.	HH	Hartman Hall
44.	–	Buildings & Grounds Repair Garage & Shops
46.	PS	Public Safety
47.	BG	Buildings & Grounds Office & Shops
48.	EB	Education Building
49.	JC	Judicial College
51.	LEC	Lawlor Events Center
52.	–	U.S. Bureau of Mines
53.	LR	Lombardi Recreation
54.	UV	University Village
55.	–	Football Practice Field
56.	–	Tennis Courts
57.	–	Robert Cashell Field House
58.	S	Mackay Stadium
60.	FP	Fleischmann Planetarium
61.	–	Nevada Historical Society
62.	CC	Computing Center
63.	ERF	Environmental Research Facility
64.	–	Health Lab., State of Nevada
65.	M	School of Medicine Anderson Health Howard Medical Sciences Manville Health Savitt Medical Sciences
66.	FMC	Family Medicine Center (Brigham Building)
67.	LA	Lawlor Annex
68.	CSF	Central Services Facility
★	UNS	Claude Howard System Administration Building

Index

For general information concerning degrees, requirements, and programs within specific colleges and schools, please refer to the Table of Contents. You should read carefully the rules and regulations which may affect you, as listed in various sections of this catalog. All courses offered at the University of Nevada, Reno are listed in the Course Offerings section, beginning on page 164

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X Y Z