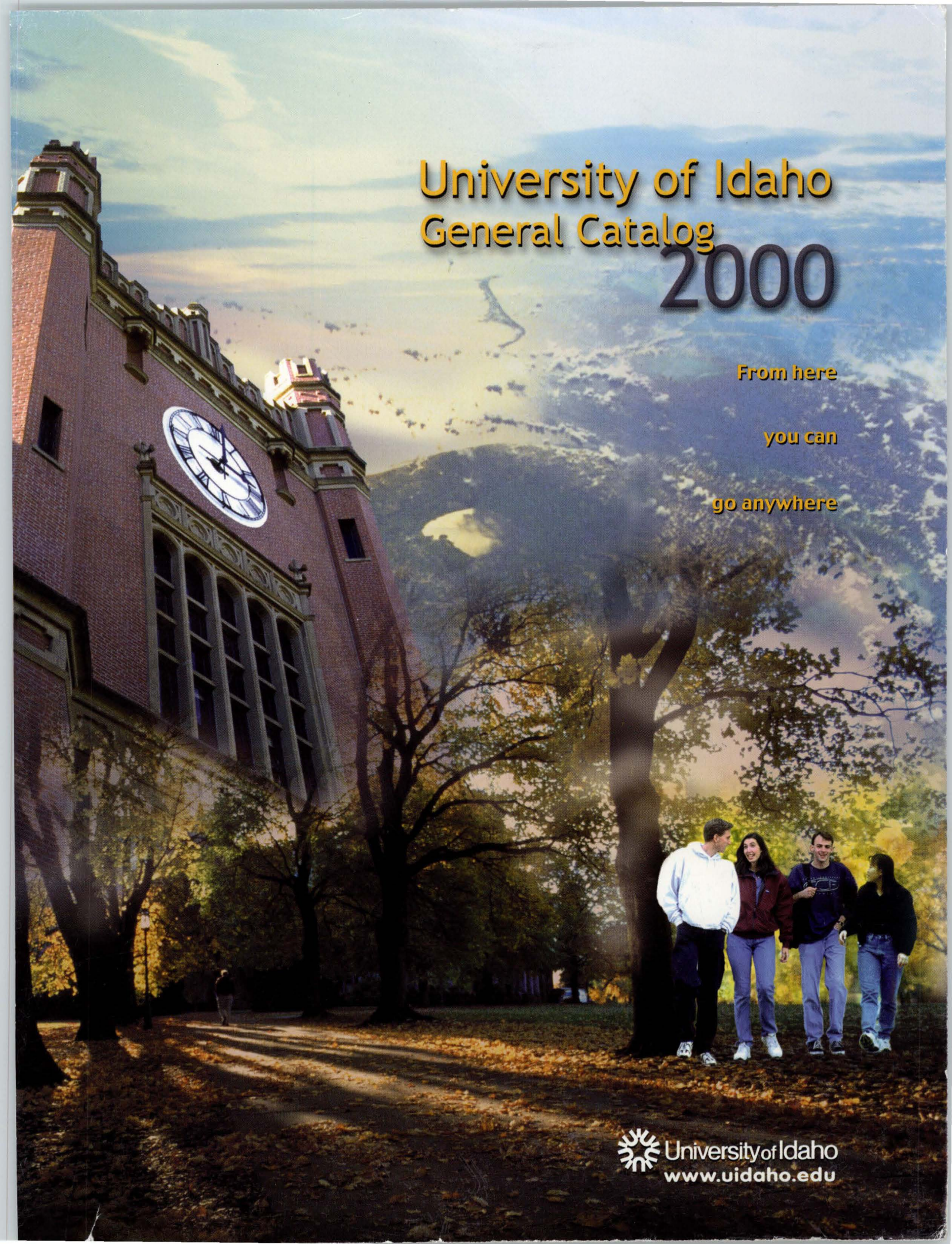
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2000
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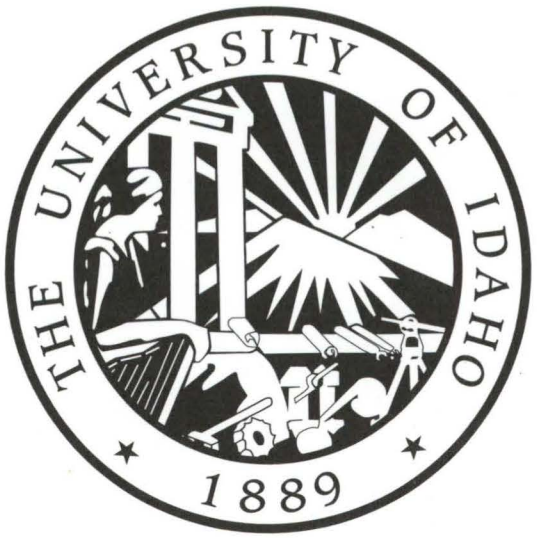
A university is . . . an *alma mater*,
knowing her children one by one,
not a foundry, or a mint, or a treadmill.
—John Henry Newman

The task of a university is the creation
of the future, so far as rational thought
and civilized modes of appreciation
can affect the issue.
—Alfred North Whitehead



For sources of additional information,
turn to the inside back cover.

The University of Idaho has a policy of nondiscrimination on the basis of race, color, national origin, religion, sex, age, disability, or status as a Vietnam-era veteran. This policy applies to all programs, services, and facilities, and includes, but is not limited to, applications, admissions, access to programs and services, and employment. Such discrimination is prohibited by titles VI and VII of the Civil Rights Act of 1964, title IX of the Educational Amendments of 1972, sections 503 and 504 of the Rehabilitation Act of 1973, the Vietnam Era Veterans' Readjustment Assistance Act of 1974, the Age Discrimination Act of 1975, the Age Discrimination in Employment Act Amendments of 1978, the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, and other state and federal laws and regulations. Questions and concerns about the application of these laws and regulations may be directed to the affirmative action officer, Human Resource Services (885-3609), to the director, Seattle Regional Office, Office for Civil Rights, U.S. Department of Education, or to the director, Office of Federal Contract Compliance Programs, U.S. Department of Labor.

University of Idaho **CATALOG** — Vol. 96, No. 2 — Issue date: April 2000

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Academic Calendar for 2000-2001

Dates in this calendar are subject to change without notice; dates appearing in admission and registration instructions take precedence over those listed below. See the "Engineering Outreach" section for dates related to that program.

SUMMER 2000

Note: See the Summer Session Catalog for additional dates and information.

Monday, May 15 ..... Beginning of early 4-week summer session
Monday, May 29 ..... Memorial Day—classes do not meet
Monday, June 12 ..... Beginning of second 4-week summer session
Monday, June 19 ..... Last day to file applications for degrees to be awarded in August without late service charge
Tuesday, July 4 ..... Independence Day—classes do not meet
Monday, July 10 ..... Beginning of third 4-week summer session
Friday, Aug. 4 ..... Last day to file acceptable theses, dissertations, abstracts, and results of comprehensive examinations for graduate degrees to be awarded in August
Friday, Aug. 4 ..... Close of summer session (5 p.m.)
Monday, Aug. 7 ..... Summer grade reports due (4:30 p.m.)

FALL SEMESTER 2000

Application closing dates for new and former students—see "Admission to the University" in the catalog
Monday, Aug. 28 ..... Classes begin (7:30 a.m.)
Tuesday, Aug. 29 ..... $50 service charge begins
Monday, Sept. 4 ..... Labor Day, a holiday—classes do not meet
Tuesday, Sept. 5 ..... Last day to add course or change course section without special permission
Monday, Sept. 11 ..... Last day to register with $50 service charge but without paying $50 late-registration fee
Last day to change from audit to regular credit without special permission
Last day to change from pass-fail to regular-grade basis
Last day to turn in "Partial Enrollment" and "Senior in 500s Course" forms to the College of Graduate Studies
Tuesday, Sept. 12 ..... Last day to file applications for degrees to be awarded in December without late service charge
Monday, Sept. 25 ..... Last day to avoid paying add-drop fee
Last day to withdraw from a course without having grade of W recorded—in the case of accelerated or short courses, when no more than 12.5 percent of the class-meeting hours have been completed
Last day to reduce number of credits for which registered in a course or change from regular-grade to pass-fail basis
Last day to change from regular credit to audit without having grade of W recorded
Last day to register with $50 service charge and $50 late-registration fee but without petition
Wednesday, Sept. 27 ..... Freshman early warning grade reports due
Monday, Oct. 9 ..... Last day to remove or extend incompletes
Classes WILL MEET this date, even though Columbus Day is a holiday
Friday, Oct. 20 ..... Last day for midsemester examinations
Monday, Oct. 23 ..... Midsemester grade reports due (1:30 p.m.)
Monday, Oct. 30 ..... Academic advising begins for spring semester
Friday, Nov. 3 ..... Last day to withdraw from a course or from the university—in the case of accelerated or short courses, after 12.5 percent but less than 60 percent of the class-meeting hours have been completed
Last day to change from regular credit to audit
Friday, Nov. 10 ..... Veterans' Day observed (students who wish to attend an observance are excused from 11 a.m. until 1 p.m.)
Saturday, Nov. 11 ..... Registration for spring-semester courses begins
Friday, Nov. 17 ..... Fall recess begins (5:30 p.m.)
Monday, Nov. 27 ..... Fall recess ends (7:30 a.m.)
Monday, Dec. 11 ..... Field-trip completion deadline (7:30 a.m.)
Monday-Friday, Dec. 11-15 ... No-examination week
Friday, Dec. 15 ..... Last day to report grades for challenged courses
Saturday, Dec. 16 ..... Commencement Day
Monday-Friday, Dec. 18-22 ... Final examinations
Friday, Dec. 22 ..... Last day to file acceptable theses, dissertations, abstracts, and results of comprehensive examinations for graduate degrees to be awarded in December
Close of fall semester (5:30 p.m.)
Wednesday, Dec. 27 ..... Semester grade reports due (5 p.m.)

SPRING SEMESTER 2001

Application closing dates for new and former students—see "Admission to the University" in the catalog.
Monday, Jan. 15 ..... Martin Luther King-Idaho Human Rights Day, a holiday—classes do not meet
Tuesday, Jan. 16 ..... Classes begin (7:30 a.m.)
Wednesday, Jan. 17 ..... $50 service charge begins
Tuesday, Jan. 23 ..... Last day to add course or change course section without special permission
Monday, Jan. 29 ..... Last day to register with $50 service charge but without paying $50 late-registration fee
Last day to change from audit to regular credit without special permission
Last day to change from pass-fail to regular-grade basis
Last day to turn in "Partial Enrollment" and "Senior in 500s Course" forms to the College of Graduate Studies
Tuesday, Jan. 30 ..... Last day to file applications for degrees to be awarded in May without late service charge
Monday, Feb. 12 ..... Last day to avoid paying add-drop fee
Last day to withdraw from a course without having grade of W recorded—in the case of accelerated or short courses, when no more than 12.5 percent of the class-meeting hours have been completed
Last day to reduce number of credits for which registered in a course or change from regular-grade to pass-fail basis
Last day to change from regular credit to audit without having grade of W recorded
Last day to register with $50 service charge and $50 late-registration fee but without petition

Wednesday, Feb. 14 ..... Freshman early warning grade reports due
Monday, Feb. 19 ..... Presidents' Day, a holiday—classes do not meet
Tuesday, Feb. 27 ..... Last day to remove or extend incompletes
Friday, March 16 ..... Last day for midsemester examinations
Spring recess begins (5:30 p.m.)
Monday, March 19 ..... Midsemester grade reports due (1:30 p.m.)
Monday, March 26 ..... Spring recess ends (7:30 a.m.)
Friday, March 30 ..... Last day to withdraw from a course or from the university—in the case of accelerated or short courses, after 12.5 percent but less than 60 percent of the class-meeting hours have been completed
Last day to change from regular credit to audit
Monday, April 9 ..... Academic advising begins for fall semester
Saturday, April 21 ..... Registration for fall-semester courses begins
Monday, May 7 ..... Field-trip completion deadline (7:30 a.m.)
Monday-Friday, May 7-11 ..... No-examination week
Friday, May 11 ..... Last day to report grades for challenged courses
Monday-Friday, May 14-18 ... Final examinations
Friday, May 18 ..... Last day to file acceptable theses, dissertations, abstracts, and results of comprehensive examinations for graduate degrees to be awarded in May
Close of spring semester (5:30 p.m.)
Saturday, May 19 ..... Commencement Day
Monday, May 21 ..... Semester grade reports due (4:30 p.m.)

Regents and Administration

(March 2000)

The Regents of the University of Idaho

BOARD MEMBERS

Harold W. Davis, *President,* Idaho Falls
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Curtis H. Eaton, *Interim Secretary,* Twin Falls
James C. Hammond, Post Falls
Severina Haws, Boise
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Karen McGee, Pocatello
Marilyn Howard, *State Superintendent of Public Instruction*, Boise (ex officio)

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Charles R. Hatch, *Ph.D., Interim Vice President for Research and Graduate Studies*
Jerry N. Wallace, *M.B.A., Vice President for Finance and Administration*
Dene K. Thomas, *Ph.D., Vice Provost for Academic Affairs*
Ronald W. Force, *M.S., Dean of Library Services*
Reta W. Pikowsky, *M.Ed., Registrar*
Daniel D. Davenport, *Ph.D., Director of Undergraduate Admissions*

Major Academic Divisions

COLLEGE OF GRADUATE STUDIES

Charles R. Hatch, *Ph.D., Interim Vice President for Research and Graduate Studies*

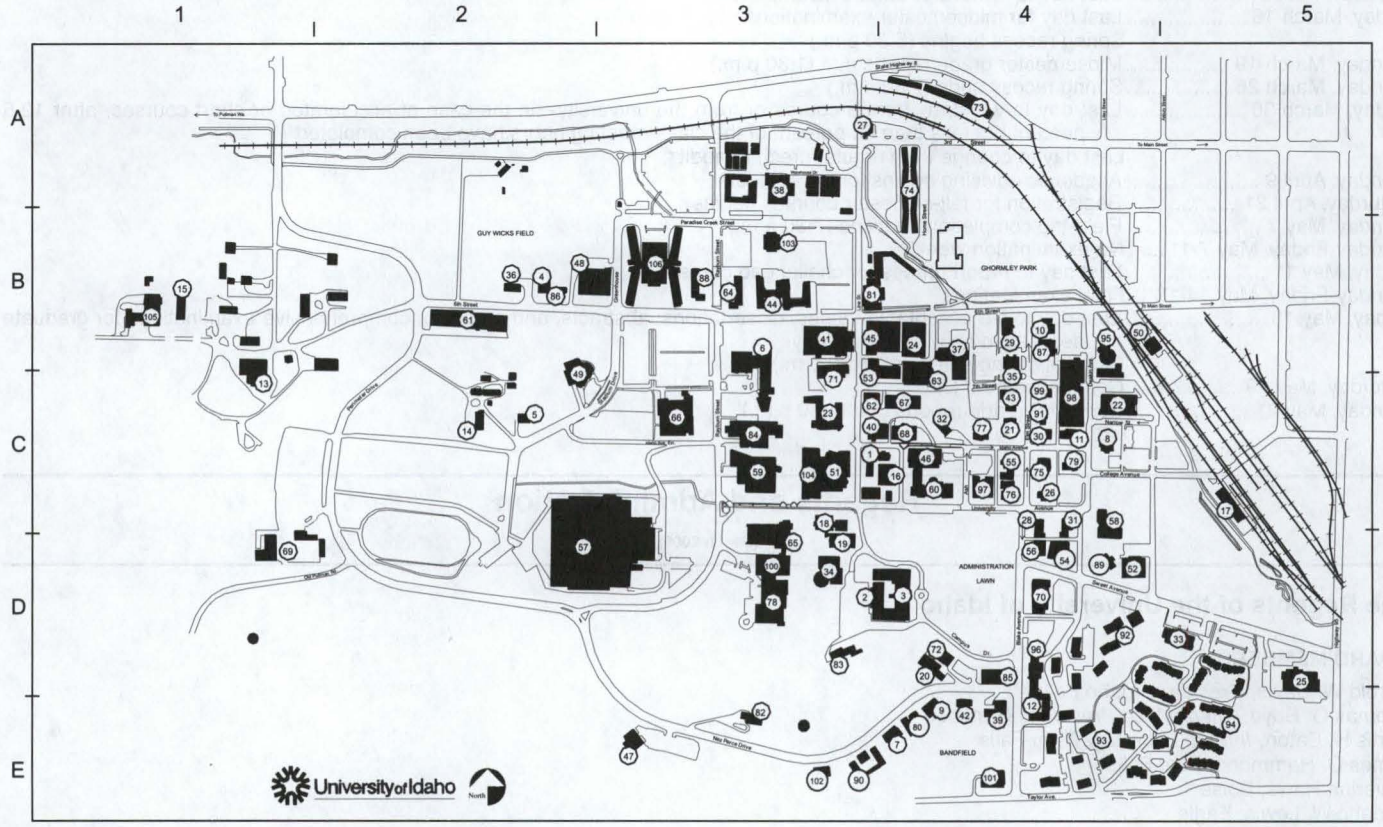
COLLEGE OF LAW

John A. Miller, *J.D., Dean*

UNDERGRADUATE COLLEGES*

Letters and Science—Kurt O. Olsson, *Ph.D., Dean*
Agriculture—A. Larry Branen, *Ph.D., Dean*
Engineering—David E. Thompson, *Ph.D., Dean*
Mines and Earth Resources—Earl H. Bennett, *Ph.D., Dean*
Natural Resources—Charles R. Hatch, *Ph.D., Dean*
Education—N. Dale Gentry, *Ph.D., Dean*
Business and Economics—Byron J. Dangerfield, *Ph.D., Dean*
Art and Architecture—Paul G. Windley, *D.Arch., Dean*

*Listed in the order of their founding.



Building Key

1 Academic Assistance Center - C,3
2 Administration Annex - D,3
3 Administration Bldg. - D,4
4 Ag. & Ext. Education - B,2
5 Ag. Publications - C,2
6 Agricultural Science Bldg. - B,3
7 Alpha Gamma Delta - E,4
8 Alpha Gamma Rho - C,4
9 Alpha Kappa Lambda - E,4
10 Alpha Phi - B,4
11 Alpha Tau Omega - C,4
12 Alumni Center/Continuing Ed. - E,4
13 Animal Research Pavilion - C,1
14 Aquaculture Institute - C,2
15 Aquaculture Wet Lab - B,1
16 Art and Architecture - C,4
17 Art and Architecture East - C,5
18 Art and Architecture North - C,3
19 Art and Architecture South - D,3
20 Art Studio, Graduate (GAS) - D,4
21 Beta Theta Pi - C,4
22 Bookstore and Post Office - C,4
23 Brink Hall/Phinney Hall - C,3
24 Buchanan Engineering Lab - B,4
25 Business Technology Incubator - D,5
26 Campus Christian Center - C,4
27 Campus Police Substation - A,3
28 Delta Chi - C,4
29 Delta Delta Delta - B,4
30 Delta Gamma - C,4
31 Delta Sigma Phi - C,4
32 Delta Tau Delta - C,4
33 Early Childhood Center - D,5
34 Education Bldg - D,3
35 Elmwood Apartments - C,4
36 Engineering Research Lab. - B,2
37 Engineering/Physics Bldg. - B,4
38 Facilities Management - A,3
39 Farm House - E,4
40 Food Research Center - C,3
41 Forestry Bldg. - B,3
42 Foundation and Development - E,4
43 Gamma Phi Beta - C,4
44 Gault/Upham Halls - B,3
45 Gauss/Johnson Engineering Lab - B,6
46 Gibb Hall - C,4
47 Golf Clubhouse - E,3
48 Greenhouse - B,2
49 Hartung Theatre - C,2
50 Human Resources & Procurement - B,4
51 Idaho Commons - C,3
52 Industrial Education Bldg. - D,4
53 Janssen Engineering Bldg. - C,3
54 Kappa Delta - D,4
55 Kappa Kappa Gamma - C,4
56 Kappa Sigma - D,4
57 Kibbie-ASUI Activity Center - D,2
58 LDS Institute - C,4
59 Library - C,3
60 Life Sciences South - C,4
61 Martin Lab. - B,2
62 Math/Stat Assistance Center - C,3
63 McClure Hall - C,4
64 McConnell Hall - B,3
65 Memorial Gym - D,3
66 Menard Law Bldg. - C,3
67 Mines Bldg. - C,4
68 Morrill Hall - C,4
69 Motorpool/Garage - D,1
70 Music (Hampton) Bldg. - D,4
71 Navy Bldg. - C,3
72 Niccolls Bldg. - D,4
73 North Campus Center - A,4
74 Park Village Apartments - A,4
75 Phi Delta Theta - C,4
76 Phi Gamma Delta - C,4
77 Phi Kappa Tau - C,4
78 Physical Education Bldg. - D,3
79 Pi Beta Phi - C,4
80 Pi Kappa Alpha - E,4
81 Power Plant - B,3
82 President's Residence - E,3
83 Radio-TV Center - D,3
84 Renfrew Hall - C,3
85 Ridenbaugh Hall (Music Annex) - D,4
86 Safety Office - B,2
87 Scholar's Residence (Elm St.) - B,4
88 Shoup Hall - B,3
89 Sigma Alpha Epsilon - D,4
90 Sigma Chi - E,3
91 Sigma Nu - C,4
92 South Hill Apartments - D,4
93 South Hill Terrace Apartments - E,4
94 South Hill Vista Apartments - E,5
95 St. Augustine's Catholic Center - B,4
96 Steele House - D,4
97 Student Health Service - C,4
98 Student Union Bldg. - C,4
99 Sub Annex - C,4
100 Swim Center - D,3
101 Targhee Hall - E,4
102 Tau Kappa Epsilon - E,3
103 Theophilius Tower - B,3
104 University Classroom Center - C,3
105 Veterinary Science Bldg. - B,1
106 Wallace Residential Center - B,3

The University

The University of Idaho was created in 1889 by a statute of the 15th territorial legislature. Commonly known as the university charter, that act became part of the state constitution when Idaho was admitted to the Union in 1890.

The university is a publicly supported comprehensive land-grant institution with principal responsibility in Idaho for performing research and granting the Doctor of Philosophy degree. The liberal arts and sciences, offered through the College of Letters and Science, are the heart of the university's educational programs. The primary areas of statewide responsibility of the university are agriculture, architecture, engineering, forestry and wildlife, mining and metallurgy (including international programs in those areas), foreign languages, and law.

Additional university responsibilities include programs in business, economics, and education as well as the regional medical and veterinary medical education programs in which the state participates.

To assist with its statewide mission, the university maintains resident instruction centers in Coeur d'Alene, Boise, and Idaho Falls, extension offices in 42 of Idaho's 44 counties, research and extension centers in Sandpoint, Moscow, Parma, Caldwell, Kimberly, Aberdeen, Tetonia, and Dubois, and field stations at McCall, Clark Fork, Point Springs, and the Taylor Ranch in central Idaho. Through its international programs, the university extends its services to many other countries.

Over 13,000 students from all states and more than 80 foreign countries choose programs from a vast array of disciplines. Strong undergraduate programs are coupled with nationally recognized research and scholarly achievements. There are more than 750 faculty members in teaching and research, and 1,500 staff and professional personnel.

The University Library and the Law Library contain over 2 million items of books, bound periodicals, microforms, and U.S. government publications. These resources, together with the libraries at Washington State University (eight miles to the west), equal those of major metropolitan areas.

The Moscow campus and adjacent farms cover nearly 800 acres. Other university lands, including the nearby university farms and experimental forests, exceed 10,000 acres.

The university is proud of its friendly campus atmosphere and sense of community. For example, the tradition of "Hello Walk" leading to the Administration Building dates from the 1920s, when the university president greeted students and members of the faculty and staff with a warm hello and friendly smile on his way to work. The university has granted 80,348 degrees since its founding, including 2,248 to the class of 1999.

The feeling of camaraderie that pervades the campus extends to Moscow, the university's "hometown." It is a thriving community of 20,000 friendly people located in the northern part of the state about 90 miles southeast of Spokane, Washington.

Moscow is the gateway to a natural wonderland. The surrounding Palouse hills and the mountains and lakes of northern Idaho provide a scenic background for university facilities. Skiing, boating, and other outdoor recreation resources are available within easy driving distance. They include the Sawtooth and Hells Canyon national recreation areas, Frank Church River of No Return Wilderness, and scenic rivers such as the Snake, Clearwater, Salmon, Lochsa, and Selway.

The university is a member of the National Association of State Universities and Land-Grant Colleges and is accredited by the Northwest Association of Schools and Colleges. Additional approval or accreditation for specific programs has been granted by the following organizations: American Association of Collegiate Schools of Business, American Bar Association, American Chemical Society, American Dietetics Association, Association of American Law Schools, Accreditation Board for Engineering and Technology, Computer Science Accreditation Commission of the Computing Sciences Accreditation Board (bachelor's degree in computer science), National Architectural Accrediting Board, American Society of Landscape Architects, National Association of Schools of Music, National Council for Accreditation of Teacher Education, Society of American Foresters, National Association of School Psychologists, the Council for the Accreditation of Counseling and Related Educational Programs, and the National Recreation and Park Association Council on Accreditation.

Role and Mission

The Idaho State Board of Education has established the following role and mission for the University of Idaho:

The University of Idaho is a research II, land-grant institution committed to undergraduate and graduate-research education with extension services responsive to Idaho and the region's business and community needs. The university is also responsible for regional medical and veterinary medical education programs in which the state of Idaho participates.

The University of Idaho will formulate its academic plan and generate programs with primary emphasis on agriculture, forestry, mining and metallurgy, engineering, architecture, law, foreign languages, teacher preparation, and international programs related to the foregoing. The University of Idaho will give continuing emphasis in the areas of business and education and will maintain basic strengths in the liberal arts and sciences, which provide the core curriculum or general education portion of the curriculum.

The institution serves students, business and industry, the professions, and public sector groups throughout the state and region as well as diverse and special constituencies. The university also has specific responsibilities in research and extension programs related to its land-grant functions. The University of Idaho works in collaboration with other state and regional postsecondary institutions in serving these constituencies.

Purpose, Functions, and Objectives of the University of Idaho

The highest aspiration of a university is to imbue the human mind with knowledge, tolerance, and vision, and to stimulate a lasting attitude of inquiry. The University of Idaho shares this aspiration with universities everywhere. The particular purpose, functions, and objectives of the university have been defined as follows:

Purpose. In the widest sense, the purpose of the University of Idaho, a publicly supported comprehensive land-grant institution, is to serve the people of the state and nation as a major center for the preservation, advancement, and transmission of knowledge. Deriving from this purpose are the functions to be performed and the objectives to be achieved through the interaction of the various components and publics of the university.

Basic Functions and Objectives. Since its founding, the functions of the university have been viewed as threefold—teaching, research, and service. The broad objectives relating to these functions are, respectively:

(1) To offer undergraduate and graduate academic programs of excellent quality in the liberal arts and sciences and in many professional disciplines so that qualified students may develop into responsible, thinking citizens, provided with a sound general education, prepared for a lifetime of learning, and equipped with the professional and technical skills needed by society.

(2) To add to knowledge through research, scholarship, and creative activities in both fundamental and applied fields, and to seek ways of applying that knowledge to the betterment and enrichment of humanity.

(3) To make readily available to all people of the state the results of research and the rich heritage of human culture embodied in the arts and sciences.

Unique Functions of the University. As a part of the coordinated system of higher education that encompasses the state universities and college and the public community colleges, the University of Idaho has historically had certain unique functions. Specifically, the university serves the state as:

(1) Its comprehensive land-grant institution, with primary statewide responsibility for instruction, research, extension, and public service in agriculture, architecture, engineering, forestry and wildlife, law, mining and metallurgy, and in designated areas in the arts and sciences, business, and education.

(2) The institution with principal responsibility for research, research-oriented graduate education, and the granting of the Ph.D. degree. As a concomitant of this responsibility, UI's faculty members conduct research as a clearly defined element of their professional duties.

(3) The institution responsible for the state's role as a partner in regional cooperative programs in medical and veterinary medical education.

(4) A center for professional education, operating accredited professional programs in architecture, chemistry, education, engineering, forestry, family and consumer sciences, law, music, and wildlife, fishery, and range sciences, and also offering comprehensive programs in the preparation of public-school teachers, administrators, and counselors.

General Honorary Societies

The university has long possessed nationally recognized marks of excellence, including chapters of national honorary and scholarship societies in practically every specialized field and chapters of the following general honorary societies: Phi Beta Kappa (since 1926), Phi Kappa Phi (since 1960), Sigma Xi (since 1922), and Golden Key (since 1990).

Phi Beta Kappa. To qualify for nomination to Phi Beta Kappa, a candidate must have a major in the College of Letters and Science. They must have achieved a cumulative grade-point average of at least 3.50 and have fulfilled the following distribution requirements: humanities (7 semester credits); laboratory sciences and/or mathematics (11 semester credits); social sciences (7 semester credits); foreign language (completion of a single foreign language through the intermediate level, or the equivalent—16 semester credits or 4 high-school units in a single foreign language).

Phi Kappa Phi. To qualify for nomination by the local chapter of Phi Kappa Phi, a candidate must be (1) registered at UI for at least one year and (2) enrolled in the final period of his or her junior year and rank scholastically in the upper 5 percent of the class or a senior enrolled in a course of study leading to a baccalaureate degree and rank scholastically in the upper 10 percent of his or her class.

Sigma Xi. To qualify for nomination to associate membership in Sigma Xi, a student must have shown marked aptitude for research in some field of pure or applied science. An associate member must have shown noteworthy achievement as an original investigator in some field of pure or applied science to qualify for nomination to full membership.

Golden Key National Honor Society. To qualify for membership in Golden Key, a student must have junior or senior standing and must have a cumulative grade-point average that falls in the top 15 percent of the junior and senior classes. Transfer students who have completed at least 25 semester credits at the University of Idaho and meet the grade-point average requirements also qualify for membership.

Libraries

The University Library and the Law Library hold over 2 million items. The libraries receive 10,700 serial titles, and add over 100,000 items annually. There are subscriptions to over 100 newspapers, including all Idaho newspapers and representative papers from around the U.S. The library is a regional depository for U.S. and Idaho state government documents, U.S. patents, and the Defense Mapping Agency, and is a designated Earth Science Information Center.

The library's collections emphasize the land-grant traditions of the basic sciences, agriculture, forestry, and mining and geology, while maintaining supporting collections in the humanities and social sciences.

The library building has just undergone a $12.4 million addition and renovation, increasing storage, study, and research space, resulting in essentially a new library facility.

The library is air-conditioned, and open 112 hours per week during the school terms.

The Library and the Law Library operate a public access library system connected to the CARL network. The system offers library catalogs of the more than 300 CARL members, including the academic libraries of Colorado, Wyoming, Maryland, and Hawaii. Also on the system is a table-of-contents file for over 17,000 academic journal titles and periodical indexes for a number of different subjects. The system may be accessed from terminals in the library, from computers attached to the campus network, or by modem from personal computers. In addition to CARL system databases, the library subscribes to a large number of periodical indexes on CDROM, and offers mediated bibliographic searches of online services on a cost-recovery basis.

There is a reciprocal use agreement between the UI Library and Washington State University Library, located in Pullman, eight miles away. A daily shuttle service runs between the two libraries to pick up and return books and photocopies of articles.

The library operates a staffed photocopy service, which will make photocopies from library materials, as well as enlargements, reductions and copies on special paper. Self service machines located conveniently throughout the building accept coins, debit cards, or charges to university budgets.

Galleries

The galleries serve the university, community, state, and region and are the principal facilities emphasizing the visual arts in northern Idaho. The University Gallery occupies the main floor of Ridenbaugh Hall on campus (corner of Blake Street and Campus Drive); it is open during the regular academic year. The Prichard Gallery is located at 414 South Main Street in downtown Moscow; it is open throughout the year. All gallery programs and exhibitions are open to the public and no admission is charged.

Through the galleries' rotation of exhibits, visitors may see examples of the full range of visual arts, including architecture, landscape architecture, interior design, and photography as well as the traditional art media. The objectives of these galleries are to provide opportunities for local, regional, and national artists and students to exhibit their work, and a means by which visitors' awareness and appreciation of the arts is heightened. The galleries also serve as an excellent teaching device. Ties between the university and local and regional communities are strengthened by the outreach efforts of the Prichard Gallery.

Exhibitions mounted each year traditionally include those by faculty members and undergraduate and graduate students from the College of Art and Architecture. Public receptions held in connection with some exhibitions, occasional musical performances presented at the galleries, and seminars with guest artists and lecturers are ways in which the gallery serves the university and the community.

The gallery facilities and programs are administered through the College of Art and Architecture.

Information Technology Services (ITS)

ITS (merged departments formerly known as Computer Services, Educational Technology Services, and Printing and Design Services) provides the university community with information technologies and support to complement its teaching, learning, research,

telecommunications, and outreach activities, as well as serve administrative operations. The ITS main office is located in the UI Administration Building, Room 140, phone 208/885-6721. Some services provided by ITS include:

* Student Computer labs—in over 20 locations on the Moscow campus with a mix of over 700 Pentium PCs and Macintosh computers. Some labs are open 23 hours a day.
* Network and Systems—which maintains the campus telecommunications infrastructure including the university's Local Area and Wide Area Networks.
* Help Desk services—including technical assistance through telephone, e-mail, and walk-in support. The Help Desk can be visited at Admin. 133 or reached at 208/885-APAL (208/885-2725) or helpdesk@uidaho.edu.
* Technical support for the university's 20 media-enhanced classrooms and 8 compressed video classrooms.
* Printing and Publications Design Services—including campus copier services. A main copy center is located in the new Idaho Commons.
* Telephone Services—providing dial tone service and support to the Moscow campus for students, faculty, and staff.
* Audio/Visual equipment check out and classroom support services.
* Photographic/Digital Imaging Services.
* Management Information Systems—which aids in the analysis, maintenance, and installation of purchased software for both academic and administrative clients.
* Video Production/Teleconferencing Services.
* Center for Teaching Innovation—multimedia training and assistance.

The ITS web page can be found on the World Wide Web at http://www.uidaho.edu/its and provides detailed coverage of the functions and services of this department.

University of Idaho Press

The University of Idaho Press, founded in 1972, publishes scholarly books in the humanities, social sciences, and natural sciences. It serves the state, scholarly community, and university through a publishing program intended to exemplify the academic standards of the faculty and the significance of university research for society as a whole.

The Press issues annual catalogs of its new titles and books continuing in print. The Press publishes the work of academic and professional authors from across the United States and from Canada, the United Kingdom, and Europe. University of Idaho Press titles are sold throughout the West and across the country at university and retail bookstores and to libraries and academic audiences around the world.

Research

Research is a primary function of the University of Idaho and is closely related to teaching for both students and faculty members, especially at the graduate level. Research and teaching are intimately associated and mutually complementary. Hence, most classroom teaching faculty members are also actively engaged in research.

University Research Office

The University Research Office stimulates and supports research and creative activities at the university. While colleges, departments, and other units commonly develop and administer their own scholarly activities, the Research Office focuses on promoting research university wide and on providing assistance in writing multidisciplinary proposals and in obtaining research funds. This is accomplished by organizing and promoting research activities such as special grant programs and research awards; providing to individuals and departments information on grant opportunities from federal agencies, state and private sector groups and foundations; and processing and recording all grant and contract proposals to ensure that policies and procedures are recognized and followed. The Research Office strives to increase UI's research competitiveness by offering assistance to faculty, staff, and students.

The Research Council, the faculty's standing committee involved with the development and oversight of research policy, works closely with the vice president for research and graduate studies to resolve differences in interpretation and implementation of these policies. Additionally, the council acts as the peer review board in the university's internal competitive grants programs.

Idaho Research Foundation

The Idaho Research Foundation, Inc. (IRF), is a private nonprofit corporation organized for the purpose of supporting research at the university. Its principal activity is licensing technologies resulting from academic research to the private sector. The IRF identifies and protects the intellectual property developed at the University of Idaho and transfers it to the private sector through licensing agreements in order to secure support for and further develop the university's academic, research, and service responsibilities. The IRF also disseminates scientific knowledge and technical information and encourages and assists researchers and inventors by providing the means by which their scientific discoveries may be patented, copyrighted, developed, and applied. The transfer of technology generated through UI research turns society's investment into new products and industrial processes, thus increasing Idaho's competitiveness as well as the nation's.

Research Units

Research activities are many and varied, and are unique for each department and college. Certain administrative units provide an additional research function and emphasis that are, in many cases, related to the research program of the departments. Some of these units are:

Aquaculture Research Institute. The Aquaculture Research Institute (ARI) promotes, supports, directs, and coordinates aquaculture research activities at the University of Idaho and throughout the state. Through the institute, UI scientists from various disciplines conduct research in both commercial and conservation aquaculture sciences and technologies such as fish culture and production efficiency, fish breeding and genetics, fish nutrition and growth physiology, fish pathology and health, fish waste management and water quality assurance, aquaculture marketing and economics, and rehabilitation of endangered species. The ARI does not offer degrees. Rather, the ARI assists academic departments in the training of graduate-level students by providing an aquaculture emphasis within their degree programs.

Bureau of Public Affairs Research. The Bureau of Public Affairs Research prepares research studies and handbooks for state and local officials; it also conducts training for state and local government employees. Graduate students assist in the research for such studies as the bureau's Idaho Capital-for-a-Day project.

Caine Veterinary Teaching Center. This facility is located at Caldwell, Idaho, and is staffed with scientists involved with research, extension, service, and instruction in the animal and veterinary science graduate program. It provides clinical training for WOI students in veterinary medicine and is also a satellite clinical laboratory specializing in the identification, study, and control of diseases of animals used for human food.

Center for Applied Thermodynamic Studies. The Center for Applied Thermodynamic Studies (CATS) was established at the University of Idaho College of Engineering in 1975. Since its inception, the primary focus of the research in CATS has been the development of standard reference quality thermodynamic property formulations for fluids of engineering interest. In addition to equation of state development,

Frequently the station provides funding to UI graduate students, under cooperative agreement, to pursue research that may be used as the basis for the graduate thesis or dissertation.

Intermountain Forest Nutrition Cooperative. The Intermountain Forest Nutrition Cooperative in the College of Natural Resources includes the major state, federal, and private forest management organizations throughout the Inland Northwest. The cooperative's main function is the support of research dealing with the nutritional management of forests. Results of such research have the potential for application in forest management programs.

Laboratory Animal Research Facility. A centrally located facility for housing and maintaining small animals for use in teaching and research is available to faculty members and students. Information concerning space availability, use, and services provided is available through the University Research Office or through the facility itself.

Laboratory of Anthropology. The Alfred W. Bowers Laboratory of Anthropology serves as a research unit within the Department of Sociology, Anthropology, and Justice Studies. The three primary objectives are research, cultural resource management, and public outreach and education. Research facilities include the Pacific Northwest Anthropological Archives, the Asian American Comparative Collection, and the Crabtree Lithic Collection. Cultural resource management projects are supported by the Archaeological Survey of Idaho, Northern Repository. As a functioning repository, the Laboratory of Anthropology houses site forms and archaeological collections for the ten northern counties of Idaho. Public education projects include interactive presentations at area schools.

Martin Institute for Peace Studies and Conflict Resolution. The Martin Institute for Peace Studies and Conflict Resolution is an interdisciplinary research, teaching, and service center at the University of Idaho. It was founded for the purposes of advancing research and teaching into the causes of conflict, and providing conflict resolution services. Research is supported on global conflict and regional resource-related public policy disputes with a global parallel. The institute administers the undergraduate major in international studies and supports courses on conflict and peace. Conflict resolution services include a range of workshops, training seminars, and neutral third-party facilitation of processes related to public policy issues.

Microelectronics Research and Communications Institute. The Microelectronics Research and Communications Institute (MRC Institute), first established at the UI in 1983, focuses its research efforts on the application, development, design, and testing of high performance electronic circuits and systems. Since 1995, the MRC Institute's capabilities have expanded into other disciplines such as avionics, real-time software, electromagnetics, communications, and intelligent controls systems. Partnerships with local and national industries as well as governmental agencies continue to provide research opportunities for UI graduate students. In addition to the microelectronics laboratory, three other research laboratories reside in the MRC Institute: Communications and Information Engineering, Advanced Computational Electromagnetics, and Intelligent Systems. A branch of the MRC Institute has been established at the Boise campus to provide research opportunities in that vicinity. The MRC Institute also boasts the most comprehensive VLSI resource directory, accessed 4,100 times a week from around the globe *(http://www.mrc.uidaho.edu/)*.

National Institute for Advanced Transportation Technology. The mission of the National Institute for Advanced Transportation Technology (NIATT) is to work with industry, government, and research institutions to develop, evaluate, and market technologies that will improve the design and operation of transportation systems and vehicles. Four distinct centers currently operate under the umbrella of NIATT, each with a unique mission related to transportation. The **Center for Clean Vehicle Technology** (CCVT) focuses on electric and hybrid electric vehicles, models of alternative vehicles, and software models for vehicle performance. The **Center for Traffic Operations and Control** conducts research concerning traffic detection, control, surveillance, simulation and optimization. Erosion control, bridge construction, and pavement design, as well as planning methods, design practices, and software development fall under the auspices of the **Center for Transportation Infrastructure**. The **Idaho Technology Transfer Center** also operates within NIATT, providing leadership to support and enhance the overall effectiveness of local transportation agencies through communication, consultation, technical support, and training programs. Opportunities for graduate research funding are available through the University Transportation Centers program, the ITD/UI Cooperative Research Program, and other federal, regional, and state transportation research and technology development programs.

Remote Sensing Research Unit. The Remote Sensing Research Unit was formed to encourage, facilitate, and coordinate, on an interdisciplinary basis, remote sensing and geographic information system (GIS) research at UI. The unit maintains "state of the art" computing hardware, software, and field equipment for project support. Research funding comes from a variety of sources including NASA, USFS, commercial forest industries, among others. Most research projects utilize graduate students as essential elements in both data acquisition and interpretation. These projects often form the basis of either a thesis or dissertation.

Snake River Conservation Research Center. The Snake River Conservation Research Center at Kimberly, Idaho, has been developed as a cooperative facility between UI and the U.S. Department of Agriculture. USDA scientists specialize in research to improve soil and water management practices and to contribute to a better understanding of basic soil processes. Programs are focused on systems and practices that improve irrigation uniformity, efficiency, and crop yields; decrease costs and energy; and reduce soil erosion. Collaborative research projects between the USDA and UI specialists provide graduate students the opportunity to work closely with experts in both agencies and to utilize expanded facilities. USDA scientists hold adjunct faculty rank and may assist in directing student research projects and serve on graduate committees.

Software Engineering Test Lab. The Software Engineering Test Lab, a part of the Computer Science Department, conducts experiments and evaluative tests on software engineering tools, techniques, and processes. With annual support from Northwest software and firmware industries, the SETL specializes in software quality measurement, ultra-reliable software construction, economic development practices, and computer and network security.

Statistics Consulting Center. The Statistics Consulting Center provides assistance in the design of experiments and sample surveys, advice on statistical analyses, and expertise on recent developments in statistical research. Proper statistical design and analysis play a key role in producing quality research within the university. The optimal time to seek statistical consulting is during the earliest stages of the research project, and certainly before any data collection stage. Faculty members and graduate students from any discipline are welcome. The center is located in Room 400 of Brink Hall. There is no charge for these services.

USDA Hemoparasitic Disease Research Unit. The USDA Hemoparasitic Disease Research Unit is a USDA-University of Idaho cooperative research unit carrying on studies dealing with blood parasites of livestock. This is the only USDA research unit dealing with hemoparasitic diseases, which are of major importance in livestock throughout the world. USDA personnel hold graduate research appointments with UI and/or Washington State University.

U.S. Forest Service. The U.S. Forest Service, as well as other federal and state agencies and private organizations, supports research endeavors that generally involve graduate students.

U.S. Sheep Experiment Station. The U.S. Sheep Experiment Station, outside Dubois, Idaho, is linked to the College of Agriculture through affiliate faculty members. The facility provides an opportunity to investigate sheep breeding and reproductive physiology, nutrition, and range and flock management.

Wilderness Research Center. The university-wide Wilderness Research Center (WRC), created in 1969, is located in the College of Forestry, Wildlife and Range Sciences. The staff conducts and facilitates research by faculty, cooperators, and graduate students on

wilderness and related topics. The WRC sponsors a Distinguished Lecture Series and teaches several wilderness related undergraduate and graduate classes. Research focuses on (1) wilderness ecosystem research and monitoring and (2) use of wilderness for recreation, personal growth, therapy, education, and leadership development.

Degrees Granted

On completion of specific courses of study and recommendation of the faculty, the degrees listed below are granted by the Regents of the University of Idaho. In addition, the Certificate of General Proficiency is granted to students who complete specified lower-division educational programs at the UI/Idaho Falls Center for Higher Education.

Baccalaureate Degrees

Bachelor of Arts, B.A.
Bachelor of Science, B.S.
Bachelor of Science in
- Agricultural Economics, B.S.Ag.Econ.
- Agricultural Education, B.S.Ag.Ed.
- Agricultural Engineering, B.S.Ag.E.
- Agricultural Science and Technology, B.S.Ag.Sc.Tech.
- Agricultural Systems Management, B.S.A.S.M.
- Animal Science, B.S.An.Sc.
- Architecture, B.S.Arch.
- Art Education, B.S.Art Ed.
- Biological Systems Engineering, B.S.B.Sy.E.
- Business, B.S.Bus.
- Business Education, B.S.Bus.Ed.
- Cartography, B.S.Cart.
- Chemical Engineering, B.S.Ch.E.
- Civil Engineering, B.S.C.E.
- Computer Engineering, B.S.Comp.E.
- Computer Science, B.S.C.S.
- Dance, B.S.Dan.
- Education, B.S.Ed.
- Electrical Engineering, B.S.E.E.
- Entomology, B.S.Ent.
- Environmental Science, B.S.Env.S.
- Family and Consumer Sciences, B.S.F.C.S.
- Fishery Resources, B.S.Fish.Res.
- Food Science, B.S.F.S.
- Forest Products, B.S.For.Prod.
- Forest Resources, B.S.For.Res.
- Geography, B.S.Geog.
- Geological Engineering, B.S.Geol.E.
- Geology, B.S.Geol.
- Interdisciplinary Studies, B.S.I.S.
- Manufacturing Engineering, B.S.Mfg.E.
- Mechanical Engineering, B.S.M.E.
- Metallurgical Engineering, B.S.Met.E.
- Microbiology, B.S.Microbiol.
- Mining Engineering, B.S.Min.E.
- Molecular Biology and Biochemistry, B.S.M.B.B.
- Natural Resources Ecology and Conservation Biology, B.S.Nat.Res.Ecol.-Cons.Biol.
- Office Administration, B.S.O.Ad.
- Physical Education, B.S.P.E.
- Plant Science, B.S.Pl.Sc.
- Range Livestock Management, B.S.R.L.M.
- Rangeland Ecology and Management, B.S.Rangeland Ecol.-Mgt.
- Recreation, B.S.Rec.
- Resource Recreation and Tourism, B.S.Res.Rc.
- Soil Science, B.S.Soil Sc.
- Technology, B.S.Tech.
- Veterinary Science, B.S.Vet.Sc.
- Wildlife Resources, B.S.Wildl.Res.

Bachelor of Fine Arts, B.F.A.
Bachelor of General Studies, B.G.S.
Bachelor of Landscape Architecture, B.L.Arch.
Bachelor of Music, B.Mus.
Bachelor of Naval Science, B.N.S.
Bachelor of Technology, B.Tech.

Master's Degrees

Master of Arts, M.A.
Master of Science, M.S.
Master of Accountancy, M.Acct.
Master of Architecture, M.Arch.
Master of Arts in Teaching, M.A.T.
Master of Education, M.Ed.
Master of Engineering, M.Engr.
Master of Fine Arts, M.F.A.
Master of Music, M.Mus.
Master of Natural Resources, M.N.R.
Master of Natural Science, M.Nat.Sc.
Master of Public Administration, M.P.A.

Education Specialist Degrees

Education Specialist in Adult Education, Ed.S.Ad.Ed.
Education Specialist in Counseling and Human Services, Ed.S.Couns.-Hum.Serv.
Education Specialist in Education, Ed.S.Ed.
Education Specialist in Educational Administration, Ed.S.Ed.Admin.
Education Specialist in Professional-Technical Education, Ed.S.P.-T.Ed.
Education Specialist in School Psychology, Ed.S.Sch.Psych.
Education Specialist in Special Education, Ed.S.Sp.Ed.

Professional Degree in Law

Juris Doctor, J.D.

Doctoral Degrees

Doctor of Philosophy, Ph.D.
Doctor of Education, Ed.D.

Programs Offered

Programs offered by the university are shown in the list below. Entries followed by degree abbreviations are major curricula leading to the degrees indicated. After a student has completed the requirements for a degree, the degree name and, if not already a part of the degree name, the major curriculum as shown in this list are printed on the student's diploma. (By contrast, the options listed under some curricula are areas of concentration within the major. Options and academic minors are recorded only on the student's final permanent transcript.) In parentheses after each major curriculum in the list is the college or unit through which the program is offered. The abbreviations used are: Ag, College of Agriculture; A&A, College of Art and Architecture; B&E, College of Business and Economics; Ed, College of Education; Engr, College of Engineering; GS, General Studies Program; Law, College of Law; L&S, College of Letters and Science; Min, College of Mines and Earth Resources; NR, College of Natural Resources. Graduate degrees, except the degree of Juris Doctor, are offered through the College of Graduate Studies.

Accountancy (B&E) M.Acct.
Accounting (B&E) B.S.Bus.
Adult Education (Ed) M.S., M.Ed., Ed.S.Ad.Ed.. Doctoral programs in this fields are offered under "Education."
Agribusiness (Ag) B.S.Ag.Econ., B.S.An.Sc.
Agricultural Economics (Ag) B.S.Ag.Econ., M.S.
Agricultural Education (Ag) B.S.Ag.Ed., M.S.
Agricultural Engineering (Engr) B.S.Ag.E.
Agricultural Science and Technology (Ag) B.S.Ag.Sc.Tech.
Agricultural Systems Management (Ag) B.S.A.S.M.
Air Force Officer Education Program, cooperative with Washington State University
American Studies (L&S) B.A.
Animal Physiology (Ag) Ph.D.
Animal Science (Ag) M.S.
Animal Science-Production (Ag) B.S.An.Sc.
Anthropology (L&S) B.A., B.S., M.A.
Architecture (A&A) B.S.Arch., M.Arch., M.A.
Army Officer Education Program

Art (A&A) M.F.A., M.A.T.; also (L&S) B.A.
Art Education (A&A) B.S.Art Ed.
Biological and Agricultural Engineering (Engr) M.S., M.Engr., Ph.D.
Biological Sciences (L&S) M.Nat.Sc.
Biological Systems Engineering (Engr) B.S.B.Sy.E.
Biology (L&S) B.A., B.S.
Botany (L&S) B.A., B.S., M.S., Ph.D.
Business Education (Ed) B.S.Bus.Ed., M.Ed.
Cartography (Min) B.S.Cart.
Chemical Engineering (Engr) B.S.Ch.E., M.S., M.Engr., Ph.D.
Chemistry (L&S) M.S., M.A.T., Ph.D.
Chemistry: General (L&S) B.S.
Chemistry: Professional (L&S) B.S.
Chemistry: Technical Literature (L&S) B.S.
Chemistry: Technological (L&S) B.Tech.
Child, Family, and Consumer Studies (Ag) B.S.F.C.S.; also (L&S) B.A.
Civil Engineering (Engr) B.S.C.E., M.S., M.Engr., Ph.D.
Classical Studies (L&S) B.A.
Clothing, Textiles and Design (Ag) B.S.F.C.S.
Computer Engineering (Engr) B.S.Comp.E., M.S., M.Engr.
Computer Science (Engr) B.S.C.S., M.S., Ph.D.
Counseling and Human Services (Ed) M.S., M.Ed., Ed.S.Couns.-Hum.Serv. Doctoral programs in this field are offered under "Education."
Creative Writing (L&S) M.F.A.
Crime and Justice Studies (L&S) B.A., B.S.
Dairy Science (Ag) B.S.An.Sc.
Dance (Ed) B.S.Dan.
Earth Science (Min) M.A.T.
Economics (B&E) B.S.Bus., M.S.; also (L&S) B.A., B.S.
Education (Ed) Ed.S.Ed., Ed.D., Ph.D.
Educational Administration (Ed) M.S., M.Ed., Ed.S.Ed.Admin. Doctoral programs in this field are offered under "Education."
Educational Technology (Ed) M.Ed.
Electrical Engineering (Engr) B.S.E.E., M.S., M.Engr., Ph.D.
Elementary Education (Ed) B.S.Ed., M.S., M.Ed. Doctoral programs in this field are offered under "Education."
Engineering Management (Engr) M.Engr.
English (L&S) B.A., M.A., M.A.T.
Entomology (Ag) B.S.Ent., M.S., Ph.D.
Environmental Engineering (Engr) M.S., M.Engr.
Environmental Science (L&S) B.S.Env.S., M.S.
Family and Consumer Sciences (Ag) M.S.
Finance (B&E) B.S.Bus.
Fishery Resources (NR) B.S.Fish.Res., M.S. A doctoral program in this field is offered under "Forestry, Wildlife and Range Sciences."
Food and Nutrition (Ag) B.S.F.C.S.
Food Science (Ag) B.S.F.S., M.S.
Foreign Languages (L&S) B.A.
Forest Products (NR) B.S.For.Prod., M.S. A doctoral program in this field is offered under "Forestry, Wildlife and Range Sciences."
Forest Resources (NR) B.S.For.Res., M.S. A doctoral program in this field is offered under "Forestry, Wildlife and Range Sciences."
Forestry, Wildlife and Range Sciences (NR) Ph.D.
French (L&S) B.A., M.A.T.
General Studies (GS) B.G.S.
Geography (Min) B.S.Geog., M.S., M.A.T., Ph.D.; also (L&S) B.A., B.S.
Geological Engineering (Min) B.S.Geol.E., M.S.
Geology (Min) B.S.Geol., M.S., Ph.D.
Geophysics (Min) M.S.
German (L&S) B.A., M.A.T.
History (L&S) B.A., B.S., M.A., M.A.T., Ph.D.
Horticulture (Ag) B.S.Pl.Sc.
Hydrology (Min) M.S.
Industrial Technology (Ed) B.S.Tech.
Industrial Technology Education (Ed) M.S., M.Ed.
Information Systems (B&E) B.S.Bus.
Interdisciplinary Studies (L&S) B.A., B.S., M.A., M.S. (May also be offered under the B.S.I.S. by colleges other than L&S)
Interior Architecture (A&A) B.F.A.
International Studies (L&S) B.A.
Journalism and Mass Communication (L&S) B.A., B.S.
Landscape Architecture (A&A) B.L.Arch., M.S.
Latin (L&S) B.A.
Latin-American Studies (L&S) B.A.
Law (Law) J.D.
Management and Human Resources (B&E) B.S.Bus.
Marketing (B&E) B.S.Bus.
Marketing Education (Ed) B.S.Bus.Ed.
Mathematics (L&S) B.A., B.S., M.S., M.A.T., Ph.D.
Mathematics: Applied (L&S) B.S.
Mechanical Engineering (Engr) B.S.M.E., M.S., M.Engr., Ph.D.
Medical Education (WWAMI), cooperative with University of Washington
Medical Technology (L&S) B.S.
Metallurgical Engineering (Min) B.S.Met.E., M.S.
Metallurgy (Min) M.S.
Microbiology (Ag) B.S.Microbiol.; also (L&S) B.S.
Microbiology, Molecular Biology and Biochemistry (Ag) M.S., Ph.D.
Mining Engineering (Min) B.S.Min.E., M.S.
Mining Engineering-Metallurgy (Min) Ph.D.
Molecular Biology and Biochemistry (Ag) B.S.M.B.B.
Music (L&S) M.A., M.Mus.
Music: Applied (L&S) B.A., B.S.
Music: Business (L&S) B.Mus.
Music: Composition (L&S) B.Mus.
Music: History and Literature (L&S) B.A., B.S.
Music: Instrumental Performance (L&S) B.Mus.
Music: Theory (L&S) B.A., B.S.
Music: Vocal Performance (L&S) B.Mus.
Music Education: Instrumental (L&S) B.Mus.
Music Education: Vocal (L&S) B.Mus.
Music Education: Vocal-Instrumental (L&S) B.Mus.
Natural Resources (NR) M.N.R.
Natural Resources and Rural Development (Ag) B.S.Ag.Econ.
Natural Resources Ecology and Conservation Biology (NR) B.S.Nat.Res.Ecol.-Cons.Biol.
Naval Science (L&S) B.N.S.; also Navy-Marine Officer Education Program
Nuclear Engineering (Engr) M.S., M.Engr., Ph.D. (limited to students enrolled at Idaho Falls)
Office Administration (Ed) B.S.O.Ad.
Philosophy (L&S) B.A., B.S.
Physical Education (Ed) B.S.Ed., M.S., M.Ed. Doctoral programs in this field are offered under "Education."
Physics (L&S) B.A., B.S., M.S., M.A.T., Ph.D.
Plant Science (Ag) B.S.Pl.Sc., M.S., Ph.D.
Political Science (L&S) B.A., B.S., M.A., Ph.D.
Production/Operations Management (B&E) B.S.Bus.
Professional-Technical Education (Ed) B.S.Ed., M.S., M.Ed., Ed.S.P.-T.Ed. Doctoral programs in this field are offered under "Education."
Psychology (L&S) B.A., B.S., M.S.
Public Administration (L&S) M.P.A.
Public Communication (L&S) B.A., B.S.
Range Livestock Management (Ag & NR) B.S.R.L.M.
Rangeland Ecology and Management (NR) B.S.Rangeland Ecol.-Mgt., M.S. A doctoral program in this field is offered under "Forestry, Wildlife and Range Sciences."
Recreation (Ed) B.S.Rec., M.S.
Resource Recreation and Tourism (NR) B.S.Res.Rc., M.S. A doctoral program in this field is offered under "Forestry, Wildlife and Range Sciences."
School and Community Health Education (Ed) B.S.Ed.
School Psychology (Ed) Ed.S.Sch.Psych.
Science/Preveterinary (Ag) B.S.Vet.Sc.; see also "Veterinary Science."
Secondary Education (Ed) B.S.Ed., M.S., M.Ed. Doctoral programs in this field are offered under "Education."
Sociology (L&S) B.A., B.S.
Soil Science (Ag) B.S.Soil Sc., M.S., Ph.D.
Spanish (L&S) B.A., M.A.T.
Special Education (Ed) B.S.Ed., M.S., M.Ed., Ed.S.Sp.Ed. Doctoral programs in this field are offered under "Education."
Sport Science (Ed) B.S.P.E.
Statistics (L&S) M.S.

Studio Art (A&A) B.F.A.
Systems Engineering (Engr) M.Engr.
Teaching English as a Second Language (L&S) M.A.
Technology Education (Ed) B.S.Ed.
Theatre Arts (L&S) B.A., B.S., B.F.A., M.F.A.
Veterinary Science (Ag) M.S.; also Veterinary Medicine, cooperative with Washington State University and Oregon State University. See also "Science/Preveterinary."
Visual Communication (L&S) B.A., B.S.
Wildlife Resources (NR) B.S.Wildl.Res., M.S. A doctoral program in this field is offered under "Forestry, Wildlife and Range Sciences."
Zoology (L&S) B.A., B.S., M.S., Ph.D.

Academic Minors Offered

A student may elect to pursue one or more of the academic minors listed below. See regulation J-9 in part 3.

Advertising
Aerospace Studies
Aging Studies
Agribusiness
Agricultural Economics
Agricultural Extension Education
Agricultural Systems Management
American Government/Public Law
American Indian Studies
American Studies
Animal Science
Anthropology
Architecture
Art
Athletic Training
Biochemistry
Biology
Botany
Business
Chemistry
Classical Studies
Coaching
Comparative/International Politics
Computer Science
Crime and Justice Studies
Crop Science
Dance
Economics
English
Entomology
Environmental Communication
Food Science
Forest Products
Forest Resources
Forestry, Wildlife and Range Sciences
French
Geology
German
Greek
History
Horticulture
Interdisciplinary Studies
Interior Architecture
International Business
International Studies
Interpersonal Communication
Journalism
Landscape Architecture
Latin
Manufacturing Engineering
Mathematics
Mechanical Engineering
Metallurgical Engineering
Microbiology
Mining Engineering
Molecular Biology and Biochemistry
Music
Natural Resource Economics and Community Development
Naval Science
Outdoor Recreation Leadership
Philosophy
Physics
Plant Protection
Political Science
Psychology
Public Administration and Policy
Public Relations
Rangeland Ecology and Management
Recreation
Recreational Therapy
Religious Studies
Sociology
Soil Science
Spanish
Sport Ethics
Sport Science
Statistics
Teaching English as a Second Language
Technical Theatre
Theatre Arts
Theatre Arts Performance
Tourism and Leisure Enterprises
Visual Communication
Wilderness and Nature Conservation
Women's Studies
Writing
Zoology

Undergraduate Admission to the University

Information about the undergraduate admission process is available from the Undergraduate Admissions and New Student Services Offices. A prospective student will be sent an application for admission, scholarship and financial aid forms, and a means of requesting information on housing and various student activities.

Students who are pursuing a baccalaureate degree are classified as undergraduates: freshmen (fewer than 26 semester credits), sophomores (fewer than 58 semester credits), juniors (fewer than 90 semester credits), or seniors.

Applicants for admission to the university must present satisfactory evidence of good character.

Application Procedures

All applicants for admission are required to submit:

1. The appropriate, completed application form (i.e., undergraduate, nondegree, or international). Failure to list all institutions attended or submission of inaccurate transcripts or other supporting documents as specified on the application form is considered fraud and subjects the applicant to immediate cancellation of his or her registration and/or dismissal from the university.

2. Official transcripts from the last high school and all colleges or universities attended. (See sections on freshman, transfer, nondegree, or international admission requirements for further details.) **Transcripts submitted in support of an application must be official and must be sent directly to the Undergraduate Admissions Office by the issuing institution. Transcripts received become the property of the university and cannot be returned, copied, or forwarded.** Official transcripts must be signed by the registrar, superintendent, principal, or other authorized official of the school.

3. Scores from the College Board (SAT) or the American College Testing Program (ACT) if applying for admission to the freshman class. This includes transfer applicants with fewer than 14 transferable semester credits.

4. A nonrefundable application fee of $30 for domestic students and $40 for international applicants. Review of the application will be delayed until this fee is received. This fee is not charged to students applying for nondegree status.

Application Deadlines. To provide time for evaluation and for notice of acceptance to reach the applicant before classes begin, applications and credentials should be submitted to the Undergraduate Admissions Office by August 1 for fall semester and by December 1 for spring semester. Applications and credentials for summer session should be received by the Undergraduate Admissions Office at least three weeks before the opening date of the summer session or the program in which the student intends to enroll. Applications received after the above dates will be accepted in the order of their receipt only as long as additional new students can be accommodated. Acceptance will be subject to space limitations in the division in which the applicant wishes to register. International applicants have different deadlines (see "International Admission Requirements").

Notification of Admission. When all of an applicant's credentials have been received and he or she has been found eligible, a letter of acceptance and information on registration procedures will be sent. Acceptance is granted for a specified semester or summer session. If an applicant does not register for the term for which he or she applied and was accepted, it will be necessary to contact the Undergraduate Admissions Office to reactivate the application if entrance at a later time is desired.

Freshman Admission Requirements

Freshman applicants graduating from high school prior to 1996 must meet the requirements in effect for their graduation year.

A degree-seeking applicant with fewer than 14 semester credits of transferable college work must:

1. submit ACT or SAT scores;
2. graduate from an accredited high school with a combination of cumulative GPA and test scores as defined in the following table:

High School GPA		ACT Composite		SAT Verbal + Math recentered score*
3.00 - 4.00	and	any test score	or	any test score
2.60 - 2.99	and	15 - 36	or	790 - 1600
2.50 - 2.59	and	17 - 36	or	870 - 1600
2.40 - 2.49	and	19 - 36	or	930 - 1600
2.30 - 2.39	and	21 - 36	or	1000 - 1600
2.20 - 2.29	and	23 - 36	or	1070 - 1600

*These scores will be used for all SAT results beginning with the April 1995 testing date. The change is due to a new scoring format implemented by the College Board for the SAT.

3. complete specified high school courses with a minimum 2.00 GPA as listed below. A credit is defined as a course taken with a minimum of 70 hours of classroom instruction. A high school credit can be counted in only one category.

   a. **English**: A minimum of 8 credits, selected from composition and literature courses or courses that integrate composition, language, and literature.

   b. **Mathematics**: A minimum of 6 credits including algebra I or applied math I, geometry or applied math II, and algebra II. An additional 2 credits are strongly recommended. Other courses may include probability, discrete math, analytic geometry, calculus, statistics, and trigonometry. **Four of the required mathematics credits must be taken in the 10th, 11th, and 12th grades.**

   c. **Social Science**: A minimum of 5 credits, selected from American government (state and local), geography, U.S. history, world history, psychology, sociology, and economics (consumer economics courses approved by the Idaho State Board of Education may be counted toward this requirement).

   d. **Natural Science**: A minimum of 6 credits, selected from anatomy, biology, chemistry, geology, earth science, physical science, physiology, physics, zoology, and applied science courses jointly approved by the State Department of Education (SDOE) and the State Department of Professional-Technical Education (DSPTE) (maximum of two credits in this category). Ecology will count if SDOE approved. At least two credits must involve laboratory science experience. Note: A laboratory science course is defined as one in which at least one class period each week is devoted to providing students the opportunity to manipulate equipment, materials, or specimens; develop skills in observation and analysis; and discover, demonstrate, illustrate, or test scientific principles or concepts.

   e. **Humanities/Foreign Language**: A minimum of 2 credits, selected from literature, history, philosophy, foreign language, fine arts, and interdisciplinary humanities (related study of two or more of the traditional humanities disciplines). These courses should emphasize history, appreciation, theory, analysis, and/or critique. History courses beyond those required for state high school graduation may be counted. Foreign language study is strongly recommended. Native American language (five Idaho tribes) may meet this requirement if taught by certified high school faculty.

   f. **Other College Preparation**: A minimum of 3 credits, of which no more than one credit may be in speech or debate (debate must be taught by a certified teacher). Other courses may include studio/performing arts (art, dance, drama, and music) or foreign language (beyond any foreign language credit applied in the humanities/foreign language category). May include no more than two credits in SDPTE-approved classes in agricultural science and technology, business and office education, health occupations education, family and consumer sciences education, occupational family and consumer science education, technology education, marketing education, trade,

Preparation Recommended by UI Colleges

Certain preparation in addition to the minimum requirements set forth above is advisable if a student is to enter easily and progress smoothly through a particular university curriculum. The following table indicates the high school preparation recommended for prospective majors in the respective curricula of each of the UI colleges (the table combines the minimum requirements and the recommended supplements). This tabulation should help an applicant determine whether his or her preparation is adequate for a given field of study and assist students and their advisers in planning their high school programs.

PREPARATION RECOMMENDED BY COLLEGES

Subject Areas	Number of Credits Recommended by College Students who plan to enter the General Studies Program (see part 4) should use this chart as a guide for minimum high school preparation							
	Agriculture	Art & Architecture	Business & Economics	Education	Engineering	Letters & Science	Mines & Earth Resources	Natural Resources
English	8	8	8	8	8	8	8	8
Mathematics[1]								
Algebra	2	2	2	2	2	2	2	2
Geometry	2	2	2	2	2	2	2	2
Advanced Algebra	2	2	2	2	2	2	1	2
Trigonometry					1			1
Other					1		1[2]	
Social Science	5	5	5	5	5	5	5	5
Natural Science[3]								
Biology								2
Chemistry					2			2
Physics					2		2[4]	2
Unspecified	6	6	6	6	2	6	4[5]	
Humanities/Foreign Language	2	2	2	2	2	2	2	2
Other College Preparation	3	3	3	3	3	3	3	3
Total credits	30	30	30	30	32	30	30	31

[1]Four credits must be taken in the 10th, 11th, and 12th grades.

[2]Either advanced algebra, trigonometry, or solid geometry (in this order of preference).

[3]Must have laboratory experience in at least 2 credits.

[4]For mining, metallurgical, or geological engineering; for geography the 4 credits are unspecified.

[5]Chemistry strongly recommended.

Students may be admitted with fewer academic credits than the minimum total indicated for their particular college or they may be admitted with the total academic units required but with fewer units than indicated in one or more subjects. In either case the student's college will identify subject inadequacies and prescribe the means by which these deficiencies are to be removed or satisfied. Courses needed as preparation for the student's college curriculum should be taken during the student's first year at the university.

Evaluation of Transfer Credits

Upon admission of a transfer student, all credits earned or attempted and all grades received in college-level courses at accredited institutions are evaluated and core-curriculum determinations are made by the Registrar's Office. The applicability of these credits to the student's program of study is determined by the student's major department. No grade points for this work are included in the computation of his or her grade-point average at the University of Idaho. Transfer credit from non-U.S. institutions is recorded with grades of pass or fail only. All transfer credits are recorded on the student's permanent record after he or she is officially registered.

Advanced Placement. Credit is granted for successful completion of the College Board Advanced Placement Examination, the College Level Examination Program (CLEP), and courses at military schools as recommended by the American Council on Education. Inquiries about other forms of advanced placement and requests for evaluation of advanced-placement credits or for guidelines to avoid duplication of credit should be addressed to the Registrar's Office.

Internal advanced-placement credit granted by other accredited institutions will be honored on transfer to the University of Idaho.

Armed Forces Credits. The university may grant credit for completion of certain educational programs sponsored by the Armed Forces. In evaluating these programs, consideration will be given to recommendations made by the American Council on Education and other appropriate agencies and to university degree requirements.

Transfer Credit Limitations. A maximum of 70 credits earned at junior or community colleges, or one-half of the total credits required for the student's intended baccalaureate degree program, whichever is the higher number, may be transferred to the University of Idaho.

Vocational-Technical Credit. Credits earned in vocational-technical courses at accredited or state-approved vocational-technical schools may be the basis for waiving requirements or transferring credits to the University of Idaho in accordance with the following regulations:

1. When equivalence has been validated by the academic department and college that offer comparable subject matter, credits may be transferred for specific lower-division courses taken at the other institution.
2. In those cases in which comparable subject matter is not taught at the University of Idaho, the amount and characterization of the credits to be transferred is determined by the department and the dean of the college into which the student is transferring (for example, a block of credits in agriculture).
3. A grade of P (pass) is recorded for such credits that are transferred.
4. Credits transferred from vocational-technical schools are included within the 48-credit limitation of extramural and similar credits that may be counted toward a baccalaureate degree (see regulation J-5-b).
5. The department into which the student transfers decides what curricular requirements, if any, will be waived (this determination may be made independently of the transfer of credits).
6. If there are any questions concerning the waiving of distributional requirements in the college into which the student transfers, such questions are to be resolved by the dean of that college.
7. Except as substitutions for equivalent courses offered by the student's academic department, no credits in vocational-technical courses taken at a vocational-technical school may be counted toward the minimum of 128 credits required for a liberal arts degree (i.e., B.A. or B.S.) in the College of Letters and Science.

General Education Requirements for Transfer Students

One of the requirements for a UI baccalaureate degree is fulfillment of the general-education or "core-curriculum" requirements.

Students who transfer from an academic regionally accredited institution with an earned A.A. or A.S. degree have met the UI general-education requirements.

Students who transfer from any academic regionally accredited institution who have completed the equivalent of Idaho's State Board of Education general-education core (but have not completed an A.A. or A.S. degree) are not required to complete additional lower-division general-education core courses. However, these students must obtain certification of such completion from the transferring institution.

Students who enter UI without having completed an A.A. or A.S. or are not certified as having completed the equivalent of Idaho's State Board of Education general-education core have two options for fulfilling the general-education requirement. One option is to satisfy the requirement as outlined in regulation J-3 in part 3 of this catalog. In this case, transfer credits are evaluated on a course-by-course basis for equivalency to courses specified in J-3, and deficiencies are made

up by completing the necessary additional credits in nonduplicating courses listed in J-3.

As an alternative, a transfer student may satisfy the general-education requirements established by the State Board of Education as set forth immediately below. In this case, transfer credits are evaluated by subject matter, rather than on a course-by-course basis, and deficiencies are made up by completing the necessary additional credits in nonduplicating courses listed in J-3.

Alternative General Education Requirements for Transfer Students. A total of at least 36 credits that fit within the following categories and credit ranges must be completed.

a. **Communications**: 1 course (2-3 credits). Courses in this area enhance the student's ability to communicate clearly, correctly, logically, and persuasively in spoken English. Disciplines—debate, rhetoric, and speech.

b. **English Composition**: 1-2 courses (3-6 credits, depending on initial placement results). To satisfy this category, students must be able to express themselves in clear, logical, and grammatically correct written English. The first three credits may be exempt by ACT, SAT, CLEP, or College Board AP exam.

c. **Behavioral and Social Science**: 2-4 courses (6-12 credits). Courses in this area provide instruction in the history and culture of civilization; the ways political and economic organizations, structures, and institutions function and influence thought and behavior; and the scientific method as it applies to social science research. Disciplines—anthropology, economics, geography, history, political science, psychology, and sociology. Courses must be distributed over two different disciplines.

d. **Humanities, Fine Arts, and Foreign Language**: 2-4 courses (6-12 credits). Courses in this area provide instruction in the creative process, history and aesthetic principles of the fine arts, philosophy and the arts as media for exploring the human condition and examining values, and communication skills in a foreign language. Disciplines—art, drama-theatre, foreign languages, literature, music, and philosophy.

e. **Natural Science**: 2 courses (7-12 credits). Courses in this area provide an understanding of how the biological and physical sciences explain the natural world and introduce the basic concepts and terminology of the natural sciences. Disciplines—biology, chemistry, geology, physical geography, and physics. Courses may be distributed over two different disciplines; at least one course must have had an accompanying laboratory experience.

f. **Mathematics**: 1 course (3-5 credits). Courses in this area are intended to develop logical reasoning processes; skills in the use of space, numbers, symbols, and formulas; and the ability to apply mathematical skills to solve problems. Courses may include college algebra, calculus, finite mathematics, and statistics.

Graduate Admission to the University

Admission to the College of Graduate Studies is open to any student who holds a baccalaureate degree from an accredited college or university, who presents a scholastic record indicating probable success in graduate work, and who has maintained good academic standing in previous institutions attended. Admission is to a specific program only and initial admission is granted for a specific semester. A student may not be admitted to a degree program without the concurrence of the department offering the major or change degree programs without appropriate department and vice president for research and graduate studies approval. Refer to part 5 of this catalog for individual departmental admission requirements; in addition, contact the individual departments directly. The College of Graduate Studies gives final approval for admission.

Final Dates for Application

To provide time for evaluation and for notice of acceptance to reach the applicant before registration, applications and credentials should be received by the Graduate Admissions Office by July 1 for fall-semester entrance and by November 1 for spring-semester entrance (see "Admission of International Students" for final dates of application by international students who hold nonresident alien visas). Applications and credentials for summer sessions should be received by the Graduate Admissions Office by April 1. Applications received after the above dates will be accepted in the order of their receipt only as long as additional new students can be accommodated. Acceptance will be subject to space limitations in the division in which the applicant wishes to register. Individual departments may have earlier application deadlines.

Admission to Graduate Programs

A student planning to apply for work leading to a graduate degree should write to the department in which he or she wishes to major before submitting the application for graduate admission. Specific departmental admission requirements, portfolio/audition tapes for M.F.A. programs, and additional necessary information will be indicated by the department. An applicant for admission to a doctoral program is expected to have demonstrated an aptitude for research and have stronger academic qualifications than an applicant to a master's program.

Graduate Record Examination

The Graduate Record Examination (GRE) is not a Graduate College requirement, but is required by some departments. Official copies of GRE results must come from the Educational Testing Service. In rare cases, if the examination is many years out of date, students may be able to provide unofficial results of the examination with their admission application to facilitate evaluation and acceptance. GRE scores are retained by the student's department. Applicants wishing to take the Computer Based GRE on campus should contact the Student Counseling Center.

Admission of International Students

The Graduate College welcomes applications from qualified students from other countries. International applicants are expected to have qualifications similar to those required of other graduate students.

Credentials. Official transcripts and/or certified copies of the certificate, diploma, or government examination report received on completion of any college or university course work must be sent by the certifying agency directly to the Graduate Admissions Office. The credentials must be translated into English if written in a foreign language.

English Language Proficiency. UI requires all applicants whose primary language is not English to demonstrate proficiency in the English language. Primary language is defined as native language or the language of instruction used in previous academic work. Because most applicants report the Test of English as a Foreign Language (TOEFL) score, UI bases its minimum English language proficiency requirements on the TOEFL. UI requires a minimum TOEFL score of 525 (paper test) or 193 (computer test). Equivalent measures of proficiency acceptable to UI include the SAT II-ELP (956), MTELP (score of 90, but even then only if administered by UI), MELAB (76), the Cambridge IELTS (6.0), Cambridge FCE (Pass), Cambridge CAE (Pass), Cambridge CPE (Pass), and Cambridge International O level (Pass). Most departments require language proficiency at the level of the TOEFL 550 (paper) or 213 (computer) or above.

Deferred Admission. Deferred admission may be granted to applicants who qualify academically, but who have not yet met UI's minimum English language proficiency requirement. In deferred admission status, students enroll in UI's American Language and Culture Program (ALCP) to achieve the academic department's English language requirement prior to being granted full admission and commencing their degree programs.

Concurrent Enrollment as an Option of Deferred Admission. Students enrolled in ALCP Level 5 or Level 6 may, in consultation with the coordinator of ALCP and the course instructor, obtain approval to enroll as nondegree students for up to 7 credits per semester of academic courses in addition to their full-time ALCP courses. Students whose proficiency levels later prove inadequate for success in the

academic courses may be withdrawn at the discretion of the academic course instructor and the ALCP coordinator. Once students achieve the necessary language qualification and gain full admission to the university, they may apply the credits of academic courses completed while in deferred admission status toward UI degree programs (other university and College of Graduate Studies restrictions may apply).

Financial Statement. All international students who hold nonresident alien visas must present to the Graduate Admissions Office satisfactory statements of finances and adequate proof of financial responsibility or sponsorship by a reputable American citizen or organization for all financial obligations while attending the University of Idaho.

Health and Accident Insurance. Supplemental health and accident insurance is mandatory for international students who hold nonresident alien visas as well as for their accompanying dependents. Students must purchase and maintain or document coverage for themselves and their dependents by a policy equivalent to the UI policy before they are allowed to register or attend classes. Failure to obtain and maintain the required insurance may subject students to sanctions, up to and including disenrollment.

Status. International students must be in the appropriate student visa status (F-1 or J-1) in order to pursue a degree. Immigration regulations require that international students holding F-1 (non-sponsored student) or J-1 (exchange visitor, student classification) visas be certified as full-time students during the academic year. Graduate students are thus required to take a minimum of nine credit hours. An international student's major professor may be required to provide the vice president for research and graduate studies, the international student advisers, and the registrar with a written statement of the student's actual study load and progress toward the degree. It is expected that registration for thesis or dissertation credits will reflect actual work in progress, regardless of previous credits earned in this area or requirements for the completion of study.

Deadline for Application for Admission. To provide time for evaluation, for notice of admission status to reach the applicant, and for INS requirements to be met for issuance of a student visa, applications and credentials should be received by the Graduate Admissions Office no later than the following dates: for fall semester, June 1; for spring semester, October 1; for summer session, March 15.

International Student Advisers. The international student advisers (ISAs) are involved with an international student's progress at every stage of the educational process. Once a student has been admitted, the ISAs provide general information about cultural adjustment and the educational system, as well as specific details about financial aid and housing. Community contacts may be arranged, if requested. All matters pertaining to a student's status with the Immigration and Naturalization Service (U.S. Department of Justice) are handled through the ISAs' office. A mandatory orientation before registration provides new students with assistance on initial questions. After this orientation, students are invited to visit the ISAs at any time with questions or concerns relating to educational, financial, and cultural adjustment. The ISAs also serve as official liaisons between students and their consular offices or sponsoring agencies.

Special Courses. Courses in research and thesis writing are offered through the Department of English to international graduate students wishing to develop skills in library research, the organization and style of formal research writing, and the refinement and development of scientific English style and vocabulary.

Transcripts and Application for Admission

Students wishing to enter the Graduate College must submit an application for admission on a form provided by the Graduate Admissions Office and have transcripts sent directly from each institution attended to the Graduate Admissions Office. Transcripts become the property of the university and cannot be copied, returned, or forwarded.

Acceptance

When admitted to the Graduate College, an applicant will be issued a letter of acceptance. Acceptance is granted for a specified semester or summer session. If an applicant does not register for the term indicated, it will be necessary for the applicant to submit a supplemental application if he or she should desire to enter for a subsequent session or semester.

Admission Categories

Regular Enrollment. Regular enrollment for graduate study leading toward an advanced degree may be granted by the vice president for research and graduate studies to a student who satisfies all of the following criteria: (1) has a bachelor's degree from a college or university accredited by a recognized accrediting association, (2) has an undergraduate grade-point average of 3.00 or higher for the last 60 semester credits (or 90 quarter credits) or an undergraduate cumulative grade-point average of 2.80 or higher, (3) has maintained at least a 2.80 grade-point average in subsequent academic work if any, and (4) has been reviewed and recommended for acceptance by the department administering the program in which the student seeks to enroll.

Provisional Enrollment. The vice president for research and graduate studies may accept for provisional enrollment, on the master's level only, a student who is not eligible for regular enrollment, if the department administering the program in which the student seeks to enroll recommends it. The department specifies conditions that the student must fulfill in order to be advanced to regular enrollment. The vice president for research and graduate studies may also grant provisional enrollment to a student who is otherwise eligible for regular enrollment but whose prospective department specifies conditions that he or she must first meet. Examples of conditions that departments may specify are: achievement of specific grades and/or completion of specific course work. **International students who hold nonresident alien visas and students who are to be appointed to assistantships cannot be accepted in provisional enrollment.**

The associate graduate dean notifies the student that he or she has been accepted for provisional enrollment. In the letter of acceptance, the following general and specific terms governing the student's provisional enrollment are stated:

1. A student may not remain in provisional-enrollment status for more than 12 consecutive calendar months (a shorter period may be specified by the department). Nor may a student remain in this status after completing nine credits (a lower credit limitation may be specified by the department).

2. A student will be advanced from provisional to regular enrollment provided he or she maintains a GPA of at least 3.00 each semester while in the provisional status (a higher GPA may be specified by the department), fulfills the conditions, if any, that were specified by the department at the time of initial enrollment, and receives no incompletes.

3. A student who does not meet the stated conditions for advancement to regular enrollment within the specified time and credit limitations cannot continue in the College of Graduate Studies or enroll in 500-level courses and is subject to normal disqualification and reinstatement procedures.

It is the student's responsibility to be in touch with the department regarding his or her progress toward meeting the conditions for advancement.

The conditions specified for a student's advancement to regular enrollment are established at the time of his or her acceptance and must not be changed (i.e., either strengthened or relaxed) thereafter.

Departments need not require a student to make up ALL of his or her academic deficiencies while in provisional enrollment. Performance on a limited selection of them should suffice to demonstrate whether or not the student has the ability to do satisfactory graduate work. Remaining deficiencies, if any, can be made up after the student is in regular enrollment. The department must be sure that any courses the student is required to take while in provisional enrollment will, in fact, be offered during that period.

Unclassified Enrollment. Unclassified enrollment is for students who do not wish to work for a graduate degree and is not to be used as a probationary category. Admission as an unclassified student does not

guarantee subsequent transfer to any departmental degree program. This enrollment category is not open to international students who hold nonresident alien visas or to students who are to be appointed to assistantships. (Unclassified enrollment students are not eligible for Title IV financial aid.)

Nondegree Student. Refer to the "Undergraduate Admission" status above for a full description of this classification. Nondegree students are not admitted to the College of Graduate Studies. They may, however, take graduate courses with permission of the instructor and vice president for research and graduate studies provided that they have earned a baccalaureate degree with an overall 2.80 GPA. (Nondegree students are not eligible for Title IV financial aid.)

If a nondegree student receives a grade of C, D, or F in a 500-level course, he or she loses the privilege of taking more 500-level courses.

Partial Enrollment for Seniors. A senior with 116 or more credits and who has a cumulative grade point average of 2.80 or higher may apply for partial enrollment in the College of Graduate Studies for one semester at a time. Seniors desiring partial enrollment must submit a "Partial Enrollment Form" (available at the Graduate College) that contains a registration plan designating undergraduate and graduate courses, thereby indicating that the course is reserved for potential use toward a future graduate degree. Capable students who are in their last can thus begin limited graduate work at an earlier date than would otherwise be possible. Partial enrollment is for one semester only and does not admit or guarantee subsequent admission of such students to the Graduate College. Students who have been granted partial enrollment and who later wish to be admitted to the Graduate College for work on a degree must apply for admission to the Graduate College following usual procedures. The deadline for receipt of approved partial enrollment forms during the fall or spring semester is the tenth day of classes. For summer session deadlines, check the summer bulletin.

Dual Enrollment for Graduate Students. A graduate student may enroll in an undergraduate curriculum and be in both programs simultaneously. The form indicating course use (graduate or undergraduate) is available at the Graduate College and must be filed each semester. The deadline for receipt of approved dual enrollment forms during the fall or spring semester is the tenth day of classes. For summer session deadlines, check the summer bulletin.

Senior in 500-Level Course. A senior may enroll in 500-level courses provided that the student has a cumulative grade point average of 2.80 or higher. Credits earned under this regulation are recorded on the student's undergraduate record only and may not be used subsequently toward an advanced degree.

Returning Students. A graduate student who has completed one degree and wishes to enroll in further courses must file an "Application for Readmission" form with the Graduate Admissions Office. A returning graduate student who is in a degree-seeking curriculum and requests to continue in that program but has not enrolled within two years of the term in which he or she wishes to register must file an Application for Readmission with the Graduate Admissions Office. Readmission must be approved by the department in whose degree program the returning graduate student wishes to enroll. If the department denies the readmission, the student will be moved automatically into Unclassified enrollment status.

Student/Program Assessment

The University of Idaho, along with all other public institutions of higher education in Idaho, is required by policy of the State Board of Education to assess student learning in general education and in the academic majors. In late 1991, the Northwest Association of Schools and Colleges, which provides institution-wide accreditation for the university, issued similar guidelines requiring assessment.

Effective teaching and learning are essential to meeting our long-held goal of producing responsible, well-prepared citizens and leaders in their professions. Our program of student outcomes assessment has been implemented to ensure that we continually improve the teaching and learning process and the programs that support that process.

Information vital to effective assessment includes student performance as well as student opinions on the quality of university academic programs and services. To provide this information, students may be required to participate in assessment activities; these may include, but are not limited to, examinations, performance assessments, interviews, surveys, focus groups, and follow-up studies after graduation.

Mutual Responsibility Agreement

UI's acceptance of a student for admission and the student's enrollment in the university constitute an agreement of mutual responsibility. The student's part of this agreement is to accept established UI policies and rules, to respect the laws of governmental units, and to act responsibly and in a manner appropriate to these laws, policies, and rules. UI's part is to carry out its commitment to higher education, to fulfill its responsibilities in pursuit of the academic goals and objectives of all members of the university community, and to meet its obligation to provide an atmosphere in which students will have an opportunity to be heard in matters affecting their welfare as students. UI must take appropriate disciplinary action when it has been ascertained that a student's action is contrary to UI regulations and thus that this agreement has been violated.

Fees and Expenses

The rates and procedures quoted in this section were in effect during the 1999-2000 academic year. They are subject to change without notice.

Expenses for attending the University of Idaho vary with the taste and financial means of each student. The university takes pride in its record of providing high-quality instruction at reasonable cost.

Board and room are available at relatively low rates under a variety of plans. Single-occupancy rooms are subject to availability of space and cost more each semester than double-occupancy rooms. Students may reduce their living costs by sharing the work in the cooperative residence halls.

Students are encouraged to preregister for classes at the University of Idaho. For information about the registration process, contact the Registrar's Office at 208/885-6731. Business and Accounting Services (208/885-6538) can provide details regarding fees and expenses.

Annual Expenses

In forecasting total costs for the academic year, double the 1999-2000 semester costs, allow for normal increases, and add miscellaneous costs—clothing, laundry, transportation, incidentals, social and recreational expenditures, fraternal affiliations, and personal needs.

Assuming the student uses the deferral option for payment of fees and pays room and board in four equal installments, about $1,400 is needed to meet initial payment. Out-of-state students need an additional $1,100 to cover the initial tuition payment. Personal checks, bank drafts, money orders, travelers checks, VISA, and MasterCard are all accepted by the university. Also see "Deferred Payment of Fees" further on in this catalog section.

1999-2000 Costs per Semester

	Idaho Residents	Nonresidents
Tuition[1]	0	3,000
Regular full-time student fees	1,174	1,174
Books, supplies, etc.	500	500
Room and board[2]	2,000	2,000
TOTAL[3]	$3,674	$6,674

[1] In addition to special fees applicable to students enrolled in the College of Graduate Studies, the College of Law, etc.

[2] Double-occupancy rate in university-owned residence halls with 14 meals per week. Cooperative dormitories in which residents provide their own janitorial and dining hall services are available at a lower cost.

[3] Not including personal, incidental, or travel expenses.

Regular Student Fees

Unless exempted, students carrying eight or more credits (or equivalent) and all research/instructional assistants (including faculty-staff spouses) on full appointment pay the full-time student fees applicable to the particular division in which the student enrolls. Students in all divisions pay $1,174 a semester. Students in certain divisions pay additional amounts; see "Special Fees" below. Fees are payable in full at the time of registration during the scheduled registration period. Also see "Deferred Payment of Fees," below.

Payment of full-time fees covers most laboratory and course charges and entitles the student to membership in the Associated Students University of Idaho (ASUI), to a nontransferable student identification card, to the services of the Alumni Office, and to the other services and facilities maintained by the university for the benefit of the students, subject to charges for special services and the payment of the special fees listed below. No reduction in fees can be made for students who may not want to use any part of these services.

Special Fees

Nonresident Tuition ($3,000 per semester). Students who are classified as nonresidents of the state of Idaho pay this special fee in addition to the regular student fees. For tuition purposes, a student may be classified as a resident of Idaho by meeting one or more of the following qualifications:

1. Any student who has one or more parent or parents or court-appointed guardians who are domiciled in the state of Idaho. Domicile, in the case of a parent or guardian, means that individual's true, fixed, and permanent home and place of habitation. It is the place where that individual intends to remain, and to which that individual expects to return when that individual leaves without intending to establish a new domicile elsewhere. To qualify under this section, the parent, parents, or guardian must have maintained a bona fide domicile in the state of Idaho for at least one year before the opening day of the term for which the student matriculates. One year is interpreted as 12 consecutive months immediately preceding the opening date of the term for which resident status is requested.

2. Any student who receives less than 50 percent of the student's support from a parent, parents, or legal guardians who are not residents of this state for voting purposes, but which student has continuously resided in the state of Idaho for 12 months next preceding the opening day of the term during which the student proposes to attend the college or university **and who has in fact established a bona fide domicile in this state primarily for purposes other than educational**. "Continuously resided" is interpreted as physical presence in the state for 12 consecutive months. Specified support applies to the 12-month period immediately preceding the opening date of the term for which resident status is requested.

3. Subject to the definition of "nonresident student" below, any student who is a graduate of an accredited secondary school in the state of Idaho, and who matriculates at a college or university in the state of Idaho during the term immediately following graduation regardless of the residency for the student's parent or guardian.

4. The spouse of a person who is classified, or is eligible for classification, as a resident of the state of Idaho for the purposes of attending a college or university. Request for classification under this section will require that a copy of the marriage certificate be filed, and the qualifying spouse may be required to submit proof of residency in the form of an affidavit.

5. A member of the Armed Forces of the United States, stationed in the state of Idaho on military orders. "Armed Forces" means the U.S. Army, Navy, Air Force, and Marine Corps. Uniformed services such as Coast Guard or National Guard do not qualify for residency requirements. Armed Forces members must be stationed in Idaho on active duty. A certified copy of the military orders may be requested in support of this qualification for residency classification.

6. A student whose parent or guardian is a member of the Armed Forces and stationed in the state of Idaho on military orders and who receives 50 percent or more of support from parents or legal guardians. The student, while in continuous attendance, shall not lose that residency when the student's parent or guardian is transferred on military orders. Specified support must have been provided for the 12 months immediately preceding the opening day of the term for which resident status is requested. "Armed Forces" means the U.S. Army, Navy, Air Force, and Marine Corps. Uniformed services such as Coast Guard or National Guard do not qualify for residency requirements. Armed Forces members must be stationed in Idaho on active duty. A certified copy of the military orders may be requested in support of this qualification for residency classification.

7. A person separated, under honorable conditions, from the United States Armed Forces after at least two years of service, who at the time of separation designates the state of Idaho as his or her intended domicile or who has Idaho as the home of record in service and enters a college or university in the state of Idaho within one year of the date of separation. "Armed Forces" means the U.S. Army, Navy, Air Force, and Marine Corps. Uniformed services such as Coast Guard or National Guard do not qualify for residency requirements. "Two years of service" shall mean two years of **active** duty service. Reserve duty status does not qualify for residency requirements. A certified copy of the DD-214 separation papers may be requested in support of this qualification for residency classification.

8. Any individual who has been domiciled in the state of Idaho, has qualified and would otherwise be qualified under the provisions of this statute and who is away from the state for a period of less than one calendar year and has not established legal residence elsewhere provided a 12-month period of continuous residency has been established immediately prior to departure.

9. A student who is a member of any of the following Idaho Native American Indian tribes, regardless of current domicile: (a) Coeur d"Alene tribe; (b) Shoshone-Paiute tribes; (c) Nez Perce tribe; (d) Shoshone-Bannock tribes; and (e) Kootenai tribe.

Note: Any one (or more) of the characteristics described in 1 through 9 qualifies the individual as a resident for tuition purposes.

A "nonresident student" shall mean any student who does not qualify as a "resident student" under the provisions above, and shall include:

1. A student attending an institution in the state with the aid of financial assistance provided by another state or governmental unit or agency thereof, such nonresidency continuing for one year after the completion of the semester for which such assistance is last provided.

2. A person who is not a citizen of the United States of America, who does not have permanent or temporary resident status or does not hold "refugee-parolee" or "conditional entrant" status with the United States Immigration and Naturalization Service or is not otherwise permanently residing in the United States under color of the law and who does not also meet and comply with all applicable requirements of the definition of resident status.

For students who apply for special graduate and professional programs including, but not limited to, the WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Regional Medical Program, the WICHE Student Exchange Programs, Creighton University School of Dental Science, the University of Utah College of Medicine, and the Washington, Oregon, Idaho (WOI) Regional Program in Veterinary Medical Education, no applicant shall be certified or otherwise designated as a beneficiary of such special program who has not been a resident of the state of Idaho for at least one calendar year previous to the application date.

Students who are currently enrolled at UI may obtain additional information and interpretation of the residency regulations from the Registrar's Office. Those students who have not yet enrolled may contact the Admissions Office.

Application Fee. For information concerning the application fee, see the section headed "Application Procedures" at the beginning of part 2 of the catalog.

Graduate/Professional Fee. Students who enroll in the College of Graduate Studies pay this fee in addition to the regular student fees and, if applicable, nonresident tuition. Fees are $270 per semester for full-time students or $27 per credit for part-time students. Undergraduate and nondegree students enrolling in graduate courses must also pay the appropriate graduate fee.

Architecture Dedicated Fee. Students who enroll in the College of Art and Architecture in academic courses for landscape architecture, interior architecture and the architecture professional program pay the graduate fee and the architecture dedicated fee in addition to the regular student fees and, if applicable, nonresident tuition. The fees per semester for full-time architecture students are:

	Idaho Residents	Nonresidents
Regular Student Fees	1,174	1,174
Graduate/Professional Fee	270	270
Architecture Dedicated Fee	220	220
Nonresident Tuition	0	3,000
	$1,664	$4,664

Law Fee. Students who enroll in the College of Law pay the graduate fee and the law school fee in addition to the regular student fees and, if applicable, nonresident tuition. The fees per semester for full-time law students are:

	Idaho Residents	Nonresidents
Regular Student Fees	1,174	1,174
Graduate/Professional Fee	270	270
Law College Fee	700	700
Nonresident Tuition and Surcharge	0	3,000
TOTAL	$2,144	$5,144

WUE Fee ($587). The Western Undergraduate Exchange Program has a fee that is equal to 50 percent of the institution's full-time regular student fee ($1,174). Fifty percent of this fee equals $587. This fee is in addition to the regular student fees; nonresident tuition is not assessed WUE students.

WWAMI Fee. First-year students who enroll in the WWAMI Medical Education Program pay this fee in addition to the regular student fees of $1,174. For 1999-2000, the UI fee is $4,605 and the University of Washington fee is $75. The total fee per semester is $4,680.

Registration Fee for Senior Scholars. Idaho residents 60 years of age and older are permitted to enroll in courses on the Moscow campus, on a space-available basis. The fee is $20 plus $5 per credit. Senior scholars are enrolled after the regular registration days. Special fees for specific courses, e.g., music lessons, are assessed, if such charges are made to other students who take the courses concerned. Registration under this program entitles the student to instruction and library privileges only, and does not include insurance, student health services, ASUI membership, or free admission to athletic events.

Part-Time Fee ($117 a credit or equivalent). Students who register for seven credits or less pay this fee and any special fees applicable to specific courses in lieu of regular fees and tuition. Graduate and law students pay an additional $27 a credit. In addition, law students pay a $40 per credit law college fee.

Part-Time Nonresident Fee ($95 per credit hour). Students who are classified as nonresident of the state of Idaho pay this fee in addition to the regular part-time fee. This fee is not charged during summer session.

Audit or Zero-Credit Fee ($117 a credit or equivalent). Students who register as auditors or for zero credit pay this fee and any special fees applicable to specific courses unless the registration is part of a normal registration for a specific semester or other academic session for which the student has already paid the full registration fees.

Registration Service Charge ($50). Charging this fee is an incentive for students to complete their registration in a timely manner. The effective dates for this fee are listed in the registration calendar.

Late Registration Fee ($50). Students who are allowed to register after the last day to add classes or change course sections pay this fee.

Add/Drop Fee ($5). A $5 fee is charged each time a request is filed to drop or add one or more courses after the fourth week of classes.

Petition Fee ($5). A $5 fee is charged for each petition submitted to the Academic Petitions Committee or Graduate Council.

Student Health Service Fees. Payment of student registration fees entitles a student to the basic services of the Student Health Service. Additional fees are charged for medications, certain studies, and additional services according to rates maintained and available at the clinic.

Insurance Fees. The fee for Student Accident Insurance, which covers all fee-paying students, is included within the Uniform Student Fee for full-time students and within the Credit Hour Fee for part-time students. Optional Student Medical Insurance is available to students who qualify. Premiums are included on the billing statement for students registering at Moscow, and are billed separately to students registering at other locations who elect to purchase the optional Medical Insurance Plan. See the section entitled "Insurance Plans" below for a discussion of the benefits and limitations of each of these plans.

Music Special Fees. All students, except music majors in degree-required courses, enrolling in courses numbered MusA 114, 124, 134, 314, 324, 334, 514, 524, 534, and MusC 507, Individual Instruction, pay a $125 instructional fee. A $35 instructional fee is charged all students who enroll in MusA 147 and 148 (Voice Class) and MusA 153 (Guitar Class). Music majors presenting a formal full recital performance in the Hampton School of Music Recital Hall are charged $40; non-majors are charged $50. Music majors presenting a formal half recital will be charged $20. A $12 fee is charged all students who are enrolled in MusH 111, 321, 322, and 323. The fee provides two tickets to the Auditorium Series. In addition, a $15 use fee is charged all students who are enrolled in MusA 145, 146, 245, and 246 (Piano Class) and MusC 426 (Electronic Music). All students in MusT 204, 251, 252, 253, 254, 351, 352, 353, and 354 will be billed $20 for instrument maintenance. Consult the Hampton School of Music (208/885-6231) for the current schedule of fees.

Lab and Course Fees. Special fees are charged for certain courses. Examples include the College of Art and Architecture that charges a general shop fee and/or fee for certain courses and the College of Education that charges special fees for physical education classes. Consult departmental offices for the current schedule of lab and course fees.

Advanced Standing Exam Fee ($20). Charged for each separate request or petition for extramural credit—except credit for external study/experience (see below)—that is processed subsequent to a student's initial enrollment in the university. This fee applies without regard to the number of credits sought, requested, or granted. Examples of "extramural credit" are: credit by examination (see regulation D-4); credit for technical competence under such catalog entries as PTE 270, 370, 470, and 480; and credit for bypassed courses (see regulation I).

External Study/Experience Fee ($15 for filing and $10 for each credit granted). The filing fee is charged at the time the student initiates formal action to have his or her work evaluated for the granting of credit for external study/experience (see regulation I-5). The per-credit fee is charged at the time the credit is granted.

Diploma Fee ($15). This fee is payable at the time the student applies for each degree to be awarded by the university. An additional late service charge of $25 is charged for each application filed after the date listed in the registration calendar.

Thesis/Dissertation Binding Fee ($16). At the time the application for the degree is filed, every candidate for an advanced degree who is submitting a thesis or dissertation (including such terminal projects

as musical compositions) pays this fee to have two copies of the document bound for the library.

Publication and Microfilming Fee ($50). Candidates for the Ph.D. or Ed.D. degree pay this fee for the publication of the dissertation abstract and for the microfilming of the dissertation.

Transcript Fee ($4). Every person who has established an academic record at the university is sent one student copy of the academic record with his or her diploma without charge. Official copies, when requested, are $4 per copy.

Yearbook Fee ($32.50). Students wishing to order a copy of the *Gem of the Mountains* pay this fee at the time the order is placed.

Miscellaneous Fees.

1. For library charges, consult the University Library.
2. For costs of field trips and special equipment for certain courses, consult the instructor.
3. A greens fee is charged for the use of the Golf Course.
4. University employees and students are charged fees to park in university-owned lots.

Deferred Payment of Fees

Students who have no delinquent accounts with the university and who are assessed registration fees or tuition in excess of $200 are eligible to defer payment of part of the fees and tuition in accordance with the following regulations:

1. At least 40 percent of fees and tuition, in addition to the service charge specified below, must be paid at the time of registration.
2. Any special fees must be paid at the time of registration including deposits, special course fees, insurance, fines, penalties, special workshop fees, and other special charges or fees.
3. Service charges for the deferred payment plan are based upon the amount deferred as follows:

Amount Deferred	Service Charge
to $200	$10
$201-$400	$15
$401-$700	$20
$701-$1,000	$25
$1,001-$1,500	$30
$1,501-$2,000	$35
over $2,000	$40

   This charge is nonrefundable and must be paid at the time of registration.
4. The deferred balance is payable in two equal installments which are due approximately four weeks and eight weeks into the semester.
5. Any delinquent installments are assessed an additional $10 late charge, and the registration of the student concerned is subject to cancellation. **If the terms of deferral are not fulfilled, the student loses the right to defer in the future.**
6. Any aid received by a student for purposes of registration (scholarships, student loans, awards, etc.) must be applied toward the registration fees. If any aid funds remain, they are available for room, board, and books.
7. For students who wish to defer their registration fees, a separate table is set up during registration. Students can check at this table to see if they can defer and, if so, a promissory note will be drawn up and signed.
8. In the event a student who owes deferred payments withdraws from school, the difference between the portion of charges that would normally be refundable, if any, and the amount paid on the deferred plan becomes immediately due and payable in full.

Refund of Fees

Students who withdraw in accordance with the regulations governing withdrawals are entitled to the following refund of tuition and fees. Refunds are calculated on total fees and tuition charged less a $50 administrative fee for full-time students and a $20 administrative fee for part-time students. Refunds are based on the official date of withdrawal, which is considered to be the date the student begins the withdrawal process. Special lab and course fees are non-refundable after the second week of class unless otherwise specified by the department charging the fee. Applicable Federal Title IV financial aid funds will be returned to the Department of Education based on statutory regulations.

1. When the official date of withdrawal is prior to or on the first day of classes, 100 percent of fee and tuition charges is refunded.
2. When the official date of withdrawal is after the first day of classes but before the close of the second week of classes, 90 percent of fee and tuition charges less the applicable administrative fee is refunded.
3. When the official date of withdrawal is after the close of the second week of classes but before the close of the fourth week of classes, 50 percent of fee and tuition charges less the applicable administrative fee is refunded.
4. When the official date of withdrawal is after the close of the fourth week of classes but before the close of the eighth week of classes, 25 percent of fee and tuition charges less the applicable administrative fee is refunded.
5. When the official date of withdrawal is after the close of the eighth week of classes, no refund is given.

University Residences

The University of Idaho's residence halls, graduate housing, and family apartments are home to many students attending the University of Idaho. University Residences is creating success through living and learning communities. UI is a residential campus, giving students the opportunity to live on-campus and participate in a unique blend of social and academic activities. There are numerous student leadership positions, educational programming, and social events. At UI, single students have the choice of 24 different communities. For married students, one bedroom unfurnished apartments are available. For married students with children, one-, two-, three-, and four-bedroom unfurnished apartments are available. For single graduate students, furnished studio apartments are available that include an in-house computer lab, all utilities, and local telephone service. All of these options draw students closer to the campus environment, allowing them to share in the on-campus experience.

Residence Halls

Living on-campus in the residence halls offers many conveniences and amenities. Every room has two High-Speed Ethernet connections, local telephone service, and cable hookup, provided at no extra charge. Computer labs, study lounges, and TV lounges are easily accessible to all residents. Complete laundry facilities can be found in every building. The students in the Wallace Residence Center, Theophilus Tower, Gault, Upham, and McConnell Halls have easy access to a 24-hour gameroom, cafeteria, convenience store, and spacious study areas.

Some unique living options include:

Scholars' Residence: The Scholars' Residence is for students who focus on superior academic achievement. Students must have a minimum high school GPA of 3.5 and keep a minimum college GPA of 3.0 to reside in the house.

Living and Learning Communities: Traditional Halls, Theme Halls, Quiet Halls, Alcohol-Free Halls, Global Village, Transfer and Nontraditional Halls, and First Year Experience Halls offer students a strong tie to academics, success, and hall programs.

Cooperative Residences: The Ethel Steel House for women and CFWR House for men and women are smaller communities where students contribute a portion of their time doing house chores in exchange for reduced living costs. Each building has its own in-house kitchen and dining room.

Alumni Residence Center (ARC): The ARC is available to men and women who are 21 years of age or older. These single rooms are furnished, complete with hot plates and refrigerator. Leased by the year, these rooms rented for $290 a month in 1999-2000.

See the section headed "Fees and Expenses" for the approximate costs of living on campus in the residence halls. For more detailed information and to register for student housing, please contact University Residences at 208/885-6571 or 800/681-9361, or via e-mail at housing@uidaho.edu and visit the web site at www.uires.uidaho.edu.

Graduate Student Housing

The university offers housing for students who are enrolled in the College of Graduate Studies, College of Law, or WWAMI Program. These one-room studio apartments, located in the North Campus Center, are furnished with a bed, microfridge®, air conditioning, and hot plates. Graduate Housing provides an in-house computer lab, computer access in each room, cable hookup, and local telephone service. In 1999-2000, an apartment in Graduate Student Residences rented for $350-360 a month, all utilities included.

Family Housing

For married students and students with children, the university offers affordable housing options. Apartments in these communities in 1999-2000 rented for $320-541 a month. One-, two-, three-, and four-bedroom apartments are available. A $175 deposit and last month's rent are required in advance. To apply for an apartment, write to University Residences/Apartment Housing, PO Box 442010, Moscow, ID 83844-2010, e-mail housing@uidaho.edu, or visit the web site at www.uires.uidaho.edu, or call 800/681-9361 or 208/885-6571.

University-sponsored daycare facilities are available on a first-come, first-served basis and are located near these communities. Contact the Early Childhood Center at 208/885-6414 for more information.

Quality Summer Conferences

The university houses numerous summer camps and conferences, bringing many participants to campus each year. Contact Conferences, Events, and Information Services at 208/885-6662 for more information on conference services.

Sororities

Eight national sororities have chapters on the University of Idaho campus. Each chapter owns and operates its own chapter house. These are: Alpha Gamma Delta, Alpha Phi, Delta Delta Delta, Delta Gamma, Gamma Phi Beta, Kappa Delta, Kappa Kappa Gamma, and Pi Beta Phi. The average cost for living in a sorority is $2,050 a semester, which includes charges for room, board, all activity fees, and house corporation building fund.

The Panhellenic Council, which is the representative body of the eight sororities, coordinates intersorority activities, formulates policies, and facilitates the Formal Sorority Rush process.

Arrangements for Sorority Living. Membership in a sorority is done by mutual selection, where sororities extend invitations and rushees either accept or decline these invitations. Women who are interested in sorority living call 800/874-7335 or write a letter to Panhellenic Council, c/o Dean of Students Office. The selection of members in each sorority is made primarily during Formal Sorority Rush, which is held before the beginning of the fall semester.

The Sorority Rush registration deadline is August 1 and the registration form should be sent to the Dean of Students Office. Formal Rush is not the only opportunity to pledge a sorority, yet it is the only time when rush is coordinated by Panhellenic Council and all sororities participate. If you are unable to participate in Formal Sorority Rush but are interested in sorority membership, contact the Dean of Students Office, 208/885-6757.

Fraternities

Chapters of 18 national fraternities are maintained on the University of Idaho campus. These are: Alpha Gamma Rho, Alpha Kappa Lambda, Alpha Tau Omega, Beta Theta Pi, Delta Chi, Delta Sigma Phi, Delta Tau Delta, FarmHouse, Kappa Sigma, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, and Tau Kappa Epsilon. Each of these groups is represented in the Interfraternity Council, which unites them in common service to the university and promotes a spirit of cooperation and self-government among fraternities.

Membership in a fraternity is done by mutual selection, where the fraternities extend invitations to join and rushees either accept or decline these invitations. The membership selection process is facilitated by each fraternity; the university does not make these arrangements. The average cost for living in a fraternity is $2,050

a semester, which includes room, board, and all activity fees.

Arrangement for Fraternity Living. Anyone interested in fraternity living should call 800/874-7335 or write a letter to Interfraternity Council, c/o Dean of Students Office. Those who indicate an interest in fraternity living will receive information from the various fraternities during the spring and summer before they arrive at the university. Fraternity Formal Rush is held before the beginning of the fall semester. If you are unable to participate in Formal Rush but are interested in fraternity membership, contact the Dean of Students Office, 208/885-6757.

Student Services

Student Rights, Conduct, and Records

The "Statement of Student Rights," "Student Code of Conduct," and "Student Records Policy" are published in the *Faculty-Staff Handbook* and in the booklet entitled "Policies and Information of Interest to Students." The booklet is available from the Office of the Dean of Students (UCC 241), the Office of the Vice President for Student Affairs (Student Union Building), and other locations around the campus. Members of the university community are urged to familiarize themselves with these basic documents.

Academic Advising and Counseling

Academic advising is regarded by the faculty as an extension of the teaching function and, therefore, as an important responsibility of each faculty member. Each matriculating student is provided with the assistance of an adviser, a member of the faculty, who attempts to communicate to students, particularly freshmen, the meaning of higher education and its significance to the student. Advisers also explain university academic requirements and assist individual students in developing programs that satisfy these requirements. The Student Counseling Center and the Career Services Center are available to assist students who are uncertain about their career objectives or are having difficulty with required curricula (see entries for these two centers below). Students should bear in mind that they have the primary responsibility for their own careers; therefore, they must take the initiative in seeking out advice and counseling. Assistance, both formal and informal, from faculty advisers and specialists, is available once sought.

Tutoring and Academic Assistance Center

The Tutoring and Academic Assistance Center (TAAC) is the university's central academic support program. Its services include academic advising for exploratory freshmen and sophomores in the General Studies Program, freshman seminar classes (see Intr 101 and 102 in part six), tutoring in specific classes, individual counseling for academic difficulties, and a faculty-sanctioned test file.

All services of the TAAC are free to University of Idaho students. The TAAC is located on the third floor of the Idaho Commons (phone 208/885-6307).

Mathematics and Statistics Assistance Center

The Mathematics and Statistics Assistance Center (MSAC) (third floor of the Idaho Commons; 208/885-5717) was developed to give assistance to students taking lower level mathematics or statistics courses. The staff work to provide a friendly, nonthreatening environment where students will feel comfortable to work, ask questions, and learn mathematics or statistics outside of class.

The MSAC is open for mathematics tutoring Monday through Thursday, 12:30 to 5 p.m. and again from 7 to 9 p.m.; Friday from 12:30 to 3:30 p.m.; and Sunday from 3 to 5 p.m. Statistics tutoring hours vary, so please check with the MSAC Office for scheduled times. The MSAC is open in the mornings for those who want a quiet place to study.

Students can visit the MSAC on a drop-in basis during the hours above for mathematics help and during various scheduled times for statistics help to get assistance with homework problems. The MSAC also shares the building with a Computer Services lab that has a number of computers that provide support for mathematics and statistics courses, as well as tutorial programs for review and practice. The MSAC has a library of short lectures on video that can be viewed in the MSAC to assist students with particularly difficult topics.

Office of the Dean of Students (formerly Student Advisory Services)

The University of Idaho is comprised of a diverse student population: 25 percent of the students are married; 45 percent of the students live on campus in 18 fraternities, 8 sororities, and 23 living groups in 8 residence halls. Approximately 20 percent of the students are from out of state, and the international students who hold nonresident alien visas represent 40 different countries. Students spend two-thirds of their time in out-of-class activities including clubs, student government, studying, intramurals, and intercollegiate activities.

A diverse student population requires that UI have a diverse student services program. The Dean of Students Office provides a variety of services that focus on assisting students. Programs and services include advising students in living groups as well as those off campus, ethnic minority students, and veterans. In addition, the Dean of Students Office coordinates New Student Orientation, Women's Center, Child Care Center, National Student Exchange Program, student leadership activities, fraternity/sorority programs, and student discipline/conduct activities.

This wide range of programs and services includes assisting families and students who may experience crisis situations that disrupt normal academic activities.

Staff members are trained to work with individuals and groups of students and serve as a liaison between students, departments, and agencies on and off campus.

All of the services and programs are supportive of the academic mission of UI and are an integral part of the student's total education at the university.

Women's Center. The Women's Center staff is committed to providing a welcome environment and a sense of community for all. At the Women's Center, we foster personal and professional growth through a network of support and services including educational programming, crisis intervention, sexual assault awareness services, gender equity issues, information, referrals, and outreach.

Programs and services at the Women's Center include: brown-bag lunchtime programs—presentations and discussions covering a variety of topics; library—a circulating library of over 1,500 books and journals, primarily comprised of research, information, and literature regarding gender issues; information and referral to other agencies and services; crisis services—crisis intervention, support, assessment, and referral for students and others in crisis; lounge—a place to relax, read, study, get acquainted with others, and exchange ideas; newsletter—a publication announcing current programs and services, and news about women's issues, published three times a semester. The Women's Center sponsors SAFE (Sexual Assault Facilitated Education) to conduct sexual assault prevention education for campus living groups, classes, and community groups. The center also assists with nontraditional student services and programs.

National Student Exchange. National Student Exchange (NSE) gives University of Idaho students the opportunity to attend one of 165 colleges or universities throughout the United States for one or two semesters. UI students pay UI fees or the resident fees of their host campus. Students normally need to apply by February for the next academic year.

Credits and grades earned on exchange are incorporated into the student's University of Idaho academic record, and credits earned fulfill University of Idaho residence-credit requirements.

To qualify for participation in the NSE, a student should: (1) be a full-time University of Idaho student; (2) be a sophomore, junior, or senior at the time of exchange; and (3) have a grade-point average of 2.5 at the time the application is filed. Information and applications may be obtained from the NSE Office in the Office of the Dean of Students, UCC 241 (208/885-7979).

Services for Students with Disabilities. The University of Idaho has established services for students with disabilities in accordance with Section 504 of the Rehabilitation Act of 1973, as amended, and with the Americans with Disabilities Act (ADA) of 1990, as amended. Student Disability Services (SDS) provides disability support services to students with temporary or permanent disabilities. Students requesting assistance must provide appropriate disability documentation to be kept on file in the SDS office and must provide adequate advance notice of such requests. These services include, but are not limited to, readers, note takers, sign language interpreters, disability parking and campus accessibility information, preregistration assistance, new student orientation, proctor and test-taking arrangements, or help with any other disability needs. The *Campus Guide for People with Disabilities* describes some of these typical services. The guide is available in several campus locations, including the Office of Dean of Students and the University Information Center. The guide can also be provided in large print, braille, on audio cassette tape, or on computer disk with 10 working days' notice to SDS.

Students are asked to notify Student Disability Services as soon as possible to discuss specific disability-related concerns and needs. (Students requiring academic assistance and learning disabled students should also contact Student Support Services.) This voluntary self-identification enables SDS to determine appropriate and reasonable accommodations to make classes, programs, services, and activities accessible to people with disabilities. This information will be kept in strict confidence and has no effect on admission to the university. Federal law prohibits the Admissions Office from making preadmissions inquiries about disabilities.

Information regarding disabilities, voluntarily given or inadvertently received, will not adversely affect any admissions decision.

For further information or to make arrangements, contact Student Disability Services in the Office of the Dean of Students, UCC 228/241 (telephone 208/885-7716; TDD/TTY [for deaf users] 208/885-7471).

Veterans' Benefits for Educational Assistance. The Office of Veteran Affairs assists veterans, dependents, reservists, and national guardsmen who are eligible for educational benefits through the Veterans Administration. Students expecting to receive veterans benefits must apply for benefits and should contact the Office of Veteran Affairs at least six weeks before the beginning of each semester.

To qualify for payments, all veterans must be released under honorable conditions. To receive full benefits, a veteran must be pursuing an approved course of study leading to a degree or other professional objective. To be considered full time, undergraduate students must carry 12 credits or the equivalent, and graduate students must carry 9 credits or the equivalent (see regulation O-1 in part 3).

An advisory service is available to veterans and additional information, advice on benefits, or application forms may be obtained by writing to the veterans' adviser in the Office of the Dean of Students (UCC 241, 208/885-7979).

Office of Multicultural Affairs (OMA)

UI is committed to establishing and maintaining a campus environment that promotes cultural diversity. This is accomplished through the provision of services that address specific needs of Asian American/ Pacific Islander, African American, Hispanic American, and Native American students.

The Office of Multicultural Affairs provides assistance to multicultural students in the areas of advocacy, financial aid, and accessing university student support programs. OMA also works collaboratively with the university to resolve issues that may hinder recruitment and retention of multicultural students. This includes but is not limited to helping multicultural students access federal and university financial aid, especially scholarships.

Multicultural student organizations serve a vital role in retention and helping to promote cultural diversity on the UI campus. These organizations are Asian American/Pacific Islander Association (AAPIA), Native American Student Association (NASA), American Indian Science and Engineering Society (AISES) Chapter, Swu'nmp'twa (Native American Forestry Association), American Indian Business Leaders (AIBL) Chapter, Organizacion de Estudiantes Latino Americanos (OELA), and Recognizing African American Concerns in Education (RAACE). OMA assists the organizations in planning and executing campus activities of special interest to their group's members (e.g., cultural heritage months, student leadership retreat, organizational meetings, and campus educational cultural activities). For further information contact the Office of Multicultural Affairs, (208) 885-7716 or e-mail donaw@uidaho.edu, www.uidaho.edu/oma.

Student Support Services

Student Support Services is a federally funded educational assistance program (TRIO) that helps participating students to (1) identify and pursue their educational goals, (2) establish, maintain, or improve their academic performance, and (3) work through the challenges of university life.

The Student Support Services program offers participating students individualized educational planning, academic advising, academic monitoring, learning and study skill development, and tutoring. A specialist in mathematics is also available to work with students who are seeking to improve their basic math skills or who are experiencing difficulty with their college math courses. In addition, SSS offers one section of Math 107 (3 cr) over an entire academic year.

In addition to academic assistance, Student Support Services provides one to one personal support. This support is particularly helpful for students with special needs (e.g., delayed entry or re-entry, nontraditional preparation, a physical or learning disability, academic probation and reinstatement, or provisional admission).

To be eligible for services, a student must be a U.S. citizen or legal resident, must have academic need, and must be EITHER (1) low income (according to federal guidelines) OR (2) from a first generation family (neither parent has earned a baccalaureate degree) OR (3) have a documented learning/physical disability. Students are accepted into the program on a first-come, first-served basis and are encouraged to contact the office as early in the semester as possible. For more information, stop by the Idaho Commons, Room 338, or telephone (208) 885-6746, FAX (208) 885-9404, or e-mail sss@uidaho.edu.

Learning Disabled Students

Students with learning disabilities are encouraged to contact the Student Support Services program as soon as possible in order to obtain timely information and to arrange for accommodative services (e.g., extended examination time, private test space, reader services). Although Student Support Services is not designed exclusively for students with learning disabilities, many of the services and support available through this program are essential for their academic achievement. Documentation of disability is required to determine appropriate academic adjustments. For more information, contact Student Support Services, Idaho Commons, Room 338, or telephone (208) 885-6746, FAX (208) 885-9404, or e-mail sss@uidaho.edu.

Student Counseling Center

Many students find that it is helpful to discuss their concerns with a professional who takes the time to listen and understand. Psychologists at the Student Counseling Center are available to meet with students to discuss personal, educational, or career concerns. Counseling can help students learn more about themselves and develop new skills to deal more effectively with personal problems, problems with alcohol or other substances, relationships, and academic pressures. Counseling sessions are confidential.

The center offers the following services: individual counseling, group counseling, couples counseling, educational and career counseling, educational presentations, referral, testing, and assessment of learning disabilities. In addition to psychological and vocational testing, the center coordinates and administers all of the national testing programs such as the GRE, SAT, ACT, MCAT, and LSAT. As part of this service, the center operates a Computer Based Testing Center for such testing programs as the GRE, TOEFL, GMAT, and the Praxis series.

The Counseling Center also offers the following career development and counseling services to help students select a major and a career direction that is right for them: (1) individual and group counseling for major and career decision making, (2) career interest testing and interpretation, (3) workshops and educational presentations regarding career development, (4) two-credit class for upperclass students that focuses on developing the skills and knowledge base needed for career-decision making, (5) career information including books, pamphlets, and vocational biographies, (6) computerized career exploration system (Discover), and (7) college catalogs for the Northwest region.

Counseling services are available to full-time students without charge. Limited services are available for spouses. A fee is charged for some assessment and testing services. Students may schedule an appointment by going to the Student Counseling Center, UCC 309, or by calling 208/885-6716.

Student Health Service

The Student Health Service is open when the university is in session, providing care to full-time and part-time students, student spouses, and dependents.

Patient care is available for fall, spring, and summer sessions, except during university holidays. During fall and spring semesters, the Student Health Service is open Monday through Friday, 7:30 a.m. to 5:30 p.m. (Thursdays it opens at 9 a.m.). Summer hours are 8 to 11:30 a.m. and 1 to 4 p.m. The office operates on a walk-in basis, with no appointment necessary. Appointments are also available for physical examinations and PAP smears by calling 885-6693. Emergency care is available at Gritman Medical Center in Moscow when the Student Health Service is closed.

The Student Health Service provides out-patient care only. When hospitalization is necessary, patients will be admitted to Gritman Medical Center. Psychiatric evaluation is available from consulting psychiatrists, by referral from the Student Health Service or the Student Counseling Center. Nominal fees are charged for out-patient visits, certain procedures, and special services such as lab tests, x-rays, medications, nutritionist, and massage therapy.

Students and eligible family members are encouraged to visit the Student Health Service and acquaint themselves with the services available (phone 885-6693; Pharmacy 885-6535).

Insurance Plans Available to Students

All fee-paying students enrolled in academic courses for credit, excluding board-appointed faculty and staff, are automatically covered by **Student Accident Insurance** while attending the university. Full-time students are covered on a 24-hour basis while the insurance is in effect. Part-time and summer-session students are covered while on UI property or participating in a UI program or activity. Limits of coverage are $15,000 payable at 80 percent after a $150 per accident deductible, but may change from year to year.

An optional **Student Medical Insurance Plan** is available for students and their dependents upon payment of an additional medical insurance premium. In general, undergraduate students must be enrolled in six or more credit hours, and graduate students must be enrolled in four or more credit hours to be eligible to purchase medical insurance (see Insurance Fees, above). Medical insurance pays 80 percent of covered expenses up to an aggregate maximum of $50,000 per injury or sickness after a $150 annual deductible; however, benefits may change from year to year. Refunds are permitted only during the first 30 days of the beginning of each school term for students who purchase and then cancel medical insurance. International students who hold nonresident alien visas must either purchase medical insurance for themselves and all accompanying dependents or document coverage by equivalent insurance as part of their obligation to establish proof of financial responsibility. Failure to obtain and maintain insurance when required to do so may subject affected students to sanctions, up to and including disenrollment.

Both of the insurance plans are designed to partially offset the expenses of a major accident or serious illness that might require medical care, hospitalization, or surgery. Limitations, effective dates, and conditions of coverage are as specified in each policy. The plans are designed to supplement, but not replace, the services available to students at the Student Health Service. It is *not* necessary to be covered by insurance in order to receive treatment at the Student Health Service.

Information on student insurance plans is available by calling (800) 475-4258, (208) 882-4414, or (208) 885-7177 and at http://www.users.moscow.com/n-k-ins/student_health/index.html.

Student Financial Aid Services

Financial aid is federal, state, university, and local assistance provided to eligible students through the Office of Student Financial Aid Services in the form of scholarships, grants, loans, and part-time work to help pay the cost of attending college. These programs may include scholarships, Federal Pell Grants, Federal Supplemental Educational Opportunity Grants (FSEOG), LEAP (formerly SSIG), Federal or Idaho State Work Study Programs (FWS or IDWS), Federal Perkins Loans, William D. Ford Federal Direct Loans, and Federal Direct Parent Loans to Undergraduate Students (PLUS). Financial aid is expected to supplement student and family resources. While many students do live on their financial aid, it was never intended to be the sole source of income.

Application Process

Priority Dates. Because funds are limited, to receive priority consideration for all funds the student applicant must submit the Free Application for Federal Student Aid (FAFSA) so it is received by the servicer by the priority date each year. The priority date is February 15. This priority date applies to students attending both fall and spring semesters. The FAFSA should be mailed no later than the end of January in order for it to reach the processor by the priority date. In addition to the FAFSA, all students who are new to the university must also have applied for admission by the February priority date. Students who meet all of these priority dates will receive first consideration for all funds for which they qualify. Students who do not meet all of these priority dates will still be considered for Federal Pell Grants and William D. Ford Federal Direct Loans, which are available throughout the year.

Enrollment. Financial aid during the academic year is usually awarded in expectation of full-time enrollment: 12 credits per semester for undergraduate students, 10 credits per semester for law students, or 9 credits per semester for graduate students. If a student is receiving aid as a full-time student, he or she must be preregistered as a full-time student to receive the aid at registration. Students are required to enroll full time to receive scholarships, unless the donor specifies special circumstances allowing part-time enrollment. Students who meet all priority dates, but who enroll less than full time, will be considered for federal financial aid at a lower priority than those who are enrolled full time. Any aid given for less than full-time enrollment is generally in proportion to the student's credit load. All students must enroll at least half time (6 credits per semester for undergraduate students or 5 credits per semester for graduate or law students) to be considered for most types of financial aid.

Scholarships. Students who wish to apply ONLY for scholarships not based on financial need and no other types of financial aid must do one of the following in order to receive consideration: (1) Students who are attending the university for the first time only need to have a complete application for admission on file by the February 15 priority date. (2) Students who are enrolled at the university during the prior spring semester in at least 9 credits for undergraduate students, 10 credits for law students, or 6 credits for graduate students will be considered automatically (without completing any additional forms) for scholarships not based on financial need. (3) Students who are enrolled at the university for the prior spring semester but in less than 9 credits for undergraduate students, 10 credits for law students, or 6 credits for graduate students will need to notify the scholarship coordinator in Student Financial Aid Services by February 15 of their interest in scholarships not based on financial need. (4) Students who previously attended the university, but were not enrolled during the prior spring semester, must notify the scholarship coordinator in the Office of Student Financial Aid Services of their intent to enroll by the February 15 priority date.

Work Study. Students who are awarded Federal Work Study or Idaho State Work Study will be offered part-time employment in order to earn their award amount. Applications for these programs are part of the general application for financial aid. Awards are made based on financial need to students who meet all the priority dates.

Direct Loans. The University of Idaho participates in the William D. Ford Federal Direct Loan Program. Students applying for loans will not need to complete a loan application from a lender or guarantee agency used with the Federal Family Educational Loan Program. Loan funds will be provided to the student directly from the U.S. Department of Education through the University of Idaho rather than funds coming from a bank or lender. Students will be awarded these loans and asked to sign and return a promissory note to UI. Once the signed promissory note is received, the funds will be credited to the student's account.

Eligible Programs. Students who have one or more bachelor's degrees, who are working toward an additional undergraduate degree or a teaching certificate and who are not yet admitted to graduate school, are considered to be second undergraduates and are not eligible for federal grant programs (Pell, SEOG, or SSIG). They are restricted to undergraduate borrowing limits for loan programs. Students who are admitted or enrolled in the College of Graduate Studies or the College of Law are considered to be graduate students, and are eligible to apply for all financial aid programs except Federal Pell Grants and Federal Supplemental Educational Opportunity Grants. Nonmatriculated students (those not enrolled in a degree program) may not be considered for any type of financial aid. Correspondence classes may not be funded by any type of federal financial aid.

Satisfactory Academic Progress. Students at the University of Idaho must maintain satisfactory academic progress to receive federal student financial aid. Satisfactory academic progress will be reviewed at the end of each spring semester. For purposes of satisfactory academic progress (SAP), the academic year is defined as summer, fall, spring. Therefore, the summer performance prior to the fall and spring will be included in the review of satisfactory academic progress. Students receiving financial aid for the first time will be considered as being in good academic standing until they reach the defined annual evaluation time for satisfactory academic progress. It should be noted that the eligibility criteria for financial aid differ from those for academic eligibility contained in regulation L-6.

Undergraduate Program. An undergraduate student must have a minimum cumulative grade-point average upon review of satisfactory academic progress. The required minimum cumulative grade-point average is as follows:

Having completed (number of credits)	Cumulative GPA minimum
0-32	1.60
33-64	1.80
65 or more	2.00

Students must successfully completed 75 percent of the credits attempted, up to a maximum of 12 attempted credits each semester. All attempted credits (up to a maximum of 12 credits each semester)

for the summer, fall, and spring semesters will be totaled and the required number to be successfully completed will be 75 percent of that total. If a student enrolls in one semester only, the student will be expected to complete 75 percent of attempted hours for that semester, up to a total of 12 attempted credits.

Successful completion is defined as receiving earned credit as defined by the UI Academic Policy. For students receiving federal financial aid, attempted credits will be defined as the number of credits enrolled in at the time the student's financial aid is disbursed. For students not receiving federal financial aid, attempted credits will be defined as attempted hours recorded at the end of the semester in the registrar's system.

A student is allowed to have attempted up to 150 percent of the required credits for a degree. Attempted credit hours is defined as the number of attempted credits in the registrar's system or the number of earned credits, whichever is higher. For an undergraduate degree other than a Bachelor of Architecture, a student will be allowed 150 percent of the 128 minimum credit hours required for a total of 194 credits. Once a student reaches 194 credits attempted, he or she will no longer be making satisfactory academic progress. Students in the Bachelor of Architecture program will be allowed 150 percent of the 160 credits required for the five-year degree, for a total of 240 credits. Students working on a second bachelor's degree will be allowed a total of 260 undergraduate credits.

Students (other than those suspended due to 150 percent of attempted credits) suspended from receiving aid may reinstate their aid eligibility by successfully completing 12 credits with a GPA of 2.00 or better during a single term without federal or state financial aid. The student must submit a written request for the reinstatement to the Student Financial Aid Services Office.

Graduate Program. A graduate student must maintain a minimum cumulative grade-point average of 3.00 or better to continue to receive federal financial assistance.

Graduate students must successfully complete 75 percent of their credits attempted, up to a maximum of 9 attempted credits each semester. All attempted credits (up to a maximum of 9 credits each semester) for the summer, fall, and spring semesters will be totaled and the required number to be successfully completed will be 75 percent of that total. If a student enrolls in one semester only, the student will be expected to complete 75 percent of attempted hours for that semester, up to a maximum of 9 attempted hours.

Successful completion is defined as receiving earned credit as defined by the UI Academic Policy. For students receiving federal financial aid, attempted credits will be defined as the number of credits enrolled in at the time the student's financial aid is disbursed. For students not receiving federal financial aid, attempted credits will be defined as attempted hours recorded at the end of the semester in the registrar's system.

A graduate student in the master's degree program (except M.Ed./M.S. Counseling and Human Services, M.F.A.) requires an average of 36 credits for graduation. Therefore, students will be allowed to accumulate up to 150 percent of the 36 credits, for a total of 54 credits. Once a student accumulates 54 attempted credits, he or she will be suspended from receiving further financial assistance.

Students enrolled in the M.Ed./M.S. Counseling and Human Services, M.F.A., and all specialist degree programs require 60 credits for graduation. Students in these programs will be allowed to attempt up to 150 percent of the 60 credits for a total of 90 attempted credits. Attempted credit hours is defined as the number of attempted credits in the registrar's system or the number of earned credits, whichever is higher.

All doctoral degree graduation requirements require a minimum of 78 credits. Students enrolled in doctoral degree programs will be allowed to attempt 150 percent of the 78 credits for a total of 117 credits.

Law Students. Any students enrolled in the law program will be required to make satisfactory academic progress, as defined by the academic requirements of the College of Law.

Any student enrolled in the law program whose cumulative grade-point average falls below a 2.00 after one semester or more is placed on probation. If the student fails after one additional semester to obtain and maintain a 2.00 cumulative grade-point average, the student's federal financial aid will be suspended.

Any student who is suspended due to a grade-point average below 2.00 may once again be eligible to receive assistance upon reinstatement by the dean.

A law student is expected to successfully complete 75 percent of all attempted credits, up to a maximum of 10 credits each semester. Successful completion is defined as receiving earned credits as defined by UI Academic Policy. For students receiving federal financial aid, attempted credits will be defined as the number of credits enrolled in at the time the student's financial aid is disbursed. For students not receiving federal financial aid, attempted credits will be defined as attempted hours recorded at the end of the semester in the registrar's system. If a student is enrolled in one semester only, he or she must successfully complete 75 percent of the credits attempted for that semester, one to a maximum of 10 attempted credits.

Students enrolled in law must have a minimum of 88 credits for graduation. Students who have attempted 150 percent of the minimum required for graduation, a total of 132 credits, will be suspended from receiving further financial assistance. Attempted credit hours is defined as the number of attempted credits in the registrar's system or the number of earned credits, whichever is higher.

Petition for Reinstatement of Aid. Students wishing to appeal their suspension should contact the dean's office in the college in which they are enrolled. Graduate students should contact the College of Graduate Studies and law students should contact the College of Law.

Upon receiving a written petition from the student, the student's academic dean (or designee) may recommend a waiver of all satisfactory academic progress criteria due to special circumstances in a signed memorandum to the director of Student Financial Aid Services. The director will review the recommendation and make the final determination of whether to waive the suspension for the student. The decision of the academic college and the director of Student Financial Aid Services may be appealed to the Student Financial Aid Committee and then to the Administrative Hearing Board. Students may appeal to the academic college in which they were enrolled at the time of suspension or the academic college in which they are currently enrolled.

Any special circumstances concerning the student's academic progress for student financial aid will be reviewed on an individual basis. The director of Student Financial Aid Services may reinstate a student based on special circumstances unique to that student.

A letter will be sent to the student informing him or her of the financial aid suspension. A copy of the notice of financial aid suspension will be forwarded to the academic dean of the college in which the student is enrolled.

Athletic Scholarship Appeal. Students who have had their athletic scholarship aid reduced or eliminated may appeal the loss of funds by submitting an appeal in writing to the chair of the Student Financial Aid Committee.

Financial aid policies and procedures are subject to change without notice to assure compliance with federal and university regulations. The Office of Student Financial Aid Services may be contacted for current information (208/885-6312). Additional information is available in a student financial aid brochure published each year.

Leadership and Academic Achievement

Many awards are presented each year in recognition of outstanding achievement both in academic and nonacademic pursuits. For information on academic awards, contact the individual academic department. For other awards, contact the ASUI Office located on the third floor of the Idaho Commons (208/885-6331).

Recreational, Social, Extracurricular, and Co-curricular Activities

Many of the programs and activities at the Idaho Commons and Student Union are co-curricular in design, linking students' academic endeavors with out-of-class learning experiences. Students can get involved in numerous functions and activities that meet their personal goals for individual growth and leisure time activity. UI students and student organizations in the Idaho Commons and Union are integral to the planning and implementation of educational, cultural, and recreational activities for the campus.

The Idaho Commons is the center of campus life and provides programs, amenities, and services to enhance the educational experience of UI students, their families, and guests. Located at the heart of campus, the Idaho Commons serves as the crossroads and meeting place for the University of Idaho. Services offered at the Idaho Commons include meeting rooms for nonacademic programs, a variety of student support services, a food court, coffee shop, convenience store, bookstore, a ticket window for regional cultural events, ongoing art exhibitions, a copy service, a credit union, ATMs, lounges, and administrative offices. Further information on Commons' activities and services may be found at (208) 885-CMNS (885-2667).

* The **ASUI Government** is made up of student senators, an executive branch, committees, and boards. Located on the third floor of the Idaho Commons, ASUI maintains an office for the ASUI attorney general and publishes an on-line off-campus housing list (www.asui.uidaho.edu). Contact ASUI at 208/885-6331 or 885-ASUI.

The Graduate Student Association maintains an office in the Idaho Commons (third floor) and can be contacted at 208/885-9446 or gsa@uidaho.edu.

* **ASUI Productions** brings a variety of entertainment events to the UI campus throughout the school year. Students plan concerts, dances, films, speakers, and other traditional programs such as Homecoming and the Blood Drive. To participate in or learn more about ASUI Productions, call 208/885-6485.

* **Leadership Development** is available in the Idaho Commons through formalized credit and noncredit leadership training opportunities. Training takes the form of short workshops as well as a two-credit academic course. A resource center for leadership development is located in the Student Organization Center (third floor), 208/885-6951.

* A variety of **Student Organizations** make their home in the Student Organization Center on the third floor of the Idaho Commons. UI students may organize or join these groups to promote their common interests. There are over 180 student organizations on campus with varied objectives and programs. Organizational development workshops, funding, and other resources are available through an application process. A list of these organizations, together with names of current officers, is maintained. Information concerning ASUI-recognized groups may be obtained from the Student Organization Center, 208/885-2237.

The Student Union, located at Sixth and Deakin, is home to Enrollment Services, Student Media, Sound, Production, and Lighting, as well as the International Ballroom, the Borah Theater, and several meeting rooms. Services offered at the Student Union include student computer labs, a video center, a deli/espresso cafe, catering services, copy service, ATMs, and lounges.

The newly renovated Student Union is the headquarters for Enrollment Services: New Student Services, Undergraduate Admissions, Registrar, and Student Accounts. Branch offices of Vandal ID Card, Parking, and Housing are located near the Information Desk. Enrollment Services has the added convenience of the Student Financial Aid office and the UI Bookstore nearby. Tours of the campus originate from the Office of New Student Services on the main floor. Further information on Student Union activities and services may be found at (208) 885-INFO (885-4636).

Students can get involved in a number of programs and activities in the Union:

* **Student Media** is responsible for publishing the *Argonaut* newspaper, the *Gem of the Mountains* yearbook, and for operating the 24-hour student radio station KUOI-FM. Students work in all aspects of writing and producing the newspaper and yearbook, and for programming the entertainment schedule for the daily radio broadcasts. Call 208/885-7825 and get involved!

* **Sound, Production, and Lighting Services** offers training and growth opportunities for its student employees. SPL, as it's commonly known, provides professional sound, light, and multimedia production for performance and entertainment events. Employment opportunities are also available to students interested in computer and network support. SPL is located on the third floor of the Student Union.

ASUI Outdoor Programs and Rentals, located just off Perimeter Drive behind the J.W. Martin Lab (near Sixth Street and Perimeter Drive), is responsible for creating a well-rounded program of instructional and recreational outdoor experiences. Trips and activities include rock climbing, mountaineering, rafting, kayaking, cross country skiing, backpacking, winter camping, sea kayaking, and mountain biking. Eight credit classes are offered as part of the Outdoor Recreation minor. The program also offers an extensive rental inventory for outdoor activities. Be all you can be! Call 208/885-6810.

Recreational facilities located on the campus include the ASUI Kibbie Activity Center, indoor and outdoor tennis and handball courts, a climbing wall, ASUI golf course, and swimming pools.

Intercollegiate Athletics

Idaho has a proud athletic tradition and strong program in 15 sports for men and women. The teams are known as the Vandals and compete as a Division I member of the NCAA and Big West Athletic Conference. Big West conference members include Boise State, Cal Poly-San Luis Obispo, Cal State Fullerton, Long Beach State, New Mexico State, UC-Irvine, UC-Santa Barbara, North Texas, Pacific, and Utah State.

The men's program consists of teams in football, basketball, cross country, indoor and outdoor track and field, tennis, and golf. The women's program consists of teams in basketball, volleyball, cross country, indoor and outdoor track and field, tennis, golf, and soccer.

The athletic program enjoys splendid facilities. The Kibbie-ASUI Activity Center, known as the "Kibbie Dome," houses the Athletic Department offices, team locker rooms, weight room, athletic training facilities, and academic support unit. The Kibbie Dome itself is the site for football and men's basketball games. Historic Memorial Gymnasium is the home for Idaho volleyball and women's basketball games. Track and field and tennis make great use of the Kibbie Dome's indoor facilities for practice and competition as well, with the five-lane, 290-meter track and the nine indoor tennis courts. The women's soccer team plays its home matches on Guy Wicks Field. The university's 18-hole championship golf course and numerous outdoor tennis courts complete the facility picture, with new renovations scheduled to begin in the summer of 2000.

Athletic Department Mission. The UI athletic program shall serve to inspire the pursuit of excellence through honest effort, fair play, and personal integrity. Its highest priority is to enhance the educational growth of UI's young men and women. The primary purpose of the Athletic Department shall be to provide a successful, quality, competitive intercollegiate athletic experience for UI students that will enrich their lives, provide the necessary training ground for life growth, enhance the image of the institution, and build upon the academic mission of the university.

Athletic Program Goals. The goals of the UI athletic program are (1) to encourage the motivation and commitment necessary for academic success leading to the graduation of student-athletes; (2) to maximize opportunities for student-athletes to participate in a quality athletic program, in a gender balanced manner, with special attention paid to their educational growth and physical welfare; (3) to maximize opportunities for student-athletes to acquire positive values from their competitive sports experience and life skills enrichment programs, preparing them for a productive life; (4) to be a leader in providing suitable programs and opportunities for student-athletes and staff that exemplify the highest principles of gender and minority equity; (5) to

field teams that are capable to competing on equal footing with rival institutions and that are competitive for conference championships and the national opportunities that conference championships may bring; (6) to provide the atmosphere for participants to realize the importance of others, personal dignity, individual rights, and the value of cooperative teamwork to attain personal and team goals; (7) to maximize positive involvement by the various publics with the institution through the athletic program; (8) to foster the highest standards of ethical conduct and fair play; (9) to enhance the image of the University of Idaho; and (10) to maximize and stabilize the generation of revenue from all sources to fund the athletic program.

New Student Services

The Office of New Student Services represents the University of Idaho to prospective students and assists those students and their counselors and parents with decisions about higher education. Staff members visit high schools and present programs about the university to interested students, attend college fairs, distribute brochures, coordinate the flow of information from UI's colleges to students who express particular educational interests, and answer questions raised by students, counselors, and parents.

New Student Services also sponsors a campus visitation program that offers prospective students an opportunity to spend a day on campus. Visiting students and their families may tour campus and living groups. NSS can provide overnight lodging, arrange appointments with faculty members, suggest classes and activities that prospective students may attend. For more information, call the Office of New Student Services, 208/885-6163, or 88-88-UIDAHO (888/884-3246).

Career-Related Services

The university is committed to assisting students with a wide range of career-related issues from determining career interests, choosing majors and careers, developing skills and experience through academically relevant work, preparing professional job or intern search materials, and helping with job searches, to providing on-campus interviews. Career-related services are available through a number of different offices on campus. Students are encouraged to use a full range of services throughout the university including seeking advice from academic departments, faculty members, and other appropriate campus programs. Three programs with primary responsibilities related to career development are listed below.

Student Counseling Center. All students face decisions about selecting a major and a career direction that is right for them. Counseling and testing are available through the Student Counseling Center to help students explore and define their interests, abilities, values, and other needs related to choosing a major and a career.

The Counseling Center offers the following services: (1) individual and group counseling for major and career decision making, (2) career interest testing and interpretation, (3) workshops and educational presentations regarding career development, (4) a two-credit class for upperclass students that focuses on developing the skills and knowledge base needed for career-decision making, (5) career information including books, pamphlets, and vocational biographies, (6) computerized career exploration system (Discover), and (7) college catalogs for the Northwest region.

For more information, contact the Student Counseling Center, UCC 309 (208/885-6716).

Cooperative Education. Practical skills, on-the-job experience, and professional applications of classroom theory—qualities employers seek in prospective employees. Students will acquire such qualities by working through the University of Idaho Cooperative Education Program. The Cooperative Education staff assists students in finding internship positions with local, regional, and national employers.

Each year more than 400 students gain relevant experience through internships with over 225 different employers including NASA, Micron Technology, Idaho Governor's Office, St. Alphonsus Medical Center, Potlatch Corporation, Microsoft, Boeing, Bureau of Land Management, Battelle Pacific Northwest National Lab, U.S. Forest Service, CSHQA Architects Planners, Walt Disney World, Honeywell Air Transport, INEEL/Lockheed, United Nations, Telect, and Hewlett Packard.

To assist students in securing internships, the Cooperative Education staff gives individual advice on preparing resumes, writing effective cover letters, and internship search and networking strategies. Resources are available to help students find internships to fit their individualized needs. To help acquaint students with local opportunities, Cooperative Education annually cosponsors a Summer Job and Internship Fair, and a Local Internship and Student Employment Fair. Cooperative Education also coordinates a Career Development Specialist Internship each semester that provides opportunities for students to develop skills in internship materials preparation and project development.

The Cooperative Education Program serves undergraduate and graduate students in all majors. To be eligible for Cooperative Education experiences, students must be in good academic standing in their degree program. Placements are typically for one summer or semester, though many employers request students with the flexibility to work two semesters. The compensation level (pay) for internships is determined by each employer; many well-paying and volunteer (unpaid) positions are available. Typically, over 70 percent of the placements each year are in paid internships.

Cooperative Education works closely with employers, faculty, and students to ensure that work experiences have academic merit and to monitor work experience progress. The granting of academic credit and course grades is determined by the academic departments based on departmental requirements, the number of hours of the placement, and the nature of additional projects assumed by the student. Students desiring credit for their experience make arrangements with their academic department prior to the internship.

For more information, including a complete listing of programs and services, contact Cooperative Education, Idaho Commons Room 330, 208/885-5822, cooped@uidaho.edu. Internship listings by major and updated program information are available on the web site at www.uidaho.edu/cooped.

Career Services. The Career Services office provides assistance to UI students and alumni of all majors who are seeking career planning assistance and/or job opportunities in business, industry, human services, government, education, and the nonprofit sector. Numerous workshops address the special career development needs of students, and individual consultations for discussing career-related topics are also available by appointment. The UI is Idaho's most heavily recruited campus, and employer representatives visit the Career Services office to interview students for career employment and temporary/summer opportunities. An on-going listing of employment vacancies in education, business, industry, and government is maintained on our home page:<www.its.uidaho.edu/careerservices>. This home page also provides other information about the Career Services Office.

The Career Expo of the Palouse is an all-university career fair hosted jointly with Washington State University each fall. This event attracts over 150 employers with opportunities for regular, summer, and internship positions, as well as representatives from graduate schools and professional programs. The Career Services library includes career development books, magazines, and videotapes, job descriptions of current employment vacancies, biography information on hundreds of employers, and computer terminals to access our home page and other employment-related web sites. More information is available on line at our home page, in person at our office in G-11 Brink Hall, or by calling (208) 885-6121.

Student Employment Opportunities

Student and Temporary Employment Services (STES), located in the Student Union Building, is open to assist students in gaining employment experience and supplementing financial support. Office hours are Monday through Friday from 8 a.m. to 4:30 p.m. Hiring departments across campus post available positions through the STES office. All University of Idaho students are eligible to participate in the program. Hiring departments and students work together to identify a work schedule that emphasizes the student's main objective—obtaining a higher education degree. Job vacancies and applications are available at the STES office or information is available on the

Internet at http://www.uidaho.edu/hrs/sep. *All employment and payroll forms for students are completed at the STES office, SUB, phone 208/885-4500 or 885-2889.*

Alumni Association

The University of Idaho Alumni Association exists to foster and coordinate the support of alumni and friends of the university in strengthening the academic, research, service, and leadership-building programs of the institution. It also provides individual alumni services to its members throughout the world.

All UI graduates and former students who earned 90 or more credits at UI and associate and honorary alumni are members of the association. The director of alumni relations and staff, along with an elected board of directors, guide the many programs, services, and activities for the more than 75,000 members.

The Alumni Association strives to keep alumni informed about their alma mater, encourage alumni moral and material support, and apprise the university community of alumni opinion. Through a variety of awards, the association honors outstanding alumni, students, or other individuals who provide exceptional service to the institution or state of Idaho. Scholarships are given by the association to help both entering and continuing students at the university.

Alumni can maintain close ties with the university through Alumni Association services, such as travel tours, continuing-education programs, and campus and worldwide gatherings for special UI occasions, including Homecoming, Reunions, and Silver and Gold Events. The Alumni Office gathers records of alumni, and this contact service is available to the university and its alumni. The association also provides and organizes support for the university through active organizations, such as the Student Alumni Relations Board and the UI Retirees Association.

Areas of recent emphasis for the association include recruiting, and informing prospective students about the university, providing continuing education opportunities, and increasing volunteer support through the development of alumni chapters and constituency groups. The association is also strengthening and expanding its membership services, with the Alumni Credit Card and job placement and referral services.

Religious Activities

The university is served by three campus religious centers: Campus Christian Center, corner of University and Elm; LDS Institute of Religion, 902 Deakin; and St. Augustine's Roman Catholic Center, corner of Sixth and Deakin. These centers provide opportunities for the study and practice of religion as well as resources in counseling and guidance.

All of Moscow's churches provide opportunities for religious development for University of Idaho students.

Nontraditional/Adult Student Services

Are you older than 24? If so, you belong to a large part of our student body: 40 percent of our students are nontraditional, adult re-entry learners. The university's faculty and staff are aware of the unique experiences, interests, and concerns of our older students and the university provides a range of services and programs to help meet your needs.

The following university faculty and staff members are contact people for assisting nontraditional/re-entry students:

Bruce Pitman, Dean of Students, 208/885-6757

Roxanne Schreiber, Student Support Services, 208/885-6746

Judy Wallins, Tutoring and Academic Assistance Center, 208/885-6307

M. Jeannie Harvey, Women's Center, 208/885-6616

Martha Kitzrow, Student Counseling Center, 208/885-6716

Academic Support Services

The university offers a range of academic assistance programs, designed to help students enhance academic achievement and/or improve performance in specific course areas. These programs include:

Student Support Services. Student Support Services is a federally funded program that is particularly helpful for nontraditional students (e.g., delayed or re-entry students, nontraditional preparation, and students with families). Designed to complement other campus resources, this program helps participating students to adjust to the university experience, to identify educational goals, to establish or improve their academic performance, and to work through the challenges of university life. Phone 208/885-6746. For more information, see "Student Support Services" in part 2. Student Support Services is located on the third floor of the Idaho Commons.

Tutoring and Academic Assistance Center. See "Tutoring and Academic Assistance Center" in part 2.

Mathematics and Statistics Assistance Center. This program was developed to give assistance to students taking elementary mathematics or statistics courses. Students can go to the center to work, ask questions, and learn mathematics or statistics outside of class. Individual help is available on a drop-in basis, or students can attend regularly scheduled small group sessions for specific classes. The MSAC offers weekday, evening, and weekend hours; stop by or call the MSAC (208/885-5717) for information and a schedule of hours. The MSAC is located on the third floor of the Idaho Commons.

Writing Center. The English Department offers peer tutoring assistance in writing to all UI students. Students can see tutors on a drop-in basis or they can schedule an appointment by calling the center. Writing Center tutors assist students with analyzing writing strengths and weaknesses, developing ideas, and improving focus, organization, grammar, and punctuation. Tutors do not proofread or edit papers, write papers for students, grade papers, or speculate on grades papers will receive. The Writing Center offers weekday, evening, and weekend hours; stop by or call the Writing Center (208/885-6644) for information and a schedule of hours. The Writing Center is located on the third floor of the Idaho Commons.

Career Decision-Making and Information

Many students at UI are exploring major and career options and can benefit from the university's career-related programs. For a description of these programs, see "Career-Related Services" in part 2.

Child Care Services

The Early Childhood Learning Center, located on the edge of campus, offers child care, early schooling, and after school programs for children through 12 years of age. Call 208/885-6414 for information.

The Margaret Ritchie School of Family and Consumer Sciences's Child Development Laboratory provides child care opportunities for preschool children. Call 208/885-6332 for information.

Computer Education

Re-entry students may find that they need to acquire or sharpen computer skills in order to complete class assignments. The Office of Enrichment Programs (885-6486) offers workshops in computer skills, for a nominal fee.

Counseling Services

Individual and Couples Counseling. The university's Student Counseling Center offers students counseling for personal, educational, or vocational concerns; couples counseling is also provided. Student Counseling Center services are free to full-time students and with some limitations to spouses. The center also provides assessment and testing for learning disabilities; a fee is charged for this service. The Student Counseling Center is located in UCC 309, phone 208/885-6716.

Family Counseling. The Family and Children Services Office, at 200 South Almon Street in Moscow, provides family counseling on a sliding-scale fee basis to families with children under 18, for child-centered problems. Call 208/882-2432 for information.

Credit for Life Experiences

Nontraditional/re-entry students often have university-level knowledge or competence gained from work, community service, travel, or private study. Students may be awarded lower- or upper-division credit for such knowledge; see regulation I-5 under "Advanced Placement for Undergraduates" in part 3 for an explanation of how to seek credit for external study/experience.

Disabled Student Services

See "Office of the Dean of Students" in part 2.

Financial Aid Information

Nontraditional/re-entry students who have worked the year before enrolling at UI should visit the Office of Student Financial Aid Services to discuss possible special circumstances concerning their financial aid eligibility. The office is located on the south end of the Student Union Building; phone 208/885-6312. For a complete description of the Office of Student Financial Aid Services, see part 2.

Finding Employment

On-Campus Employment. The Student Employment Office, on the first floor of the Student Union Building, assists students to find on-campus jobs; phone 208/885-4500. Information about on-campus employment is also available at the Human Resource Services Office, 415 West 6th Street, phone 208/885-3595.

Off-Campus Employment. The Idaho Department of Employment Office is located at 221 East 2nd Avenue, phone 208/882-7571.

Health Services

The university offers health care to full- and part-time students, student spouses, and dependents. See "Student Health Service" in part 2. For information about community health services, contact the Latah County Health Department Office, 208/882-7506.

Housing for Nontraditional/Re-entry Students

On-Campus Living. See "University Residences" in part 2 for information on residence halls, graduate student housing, and family housing.

Off-Campus Living. Moscow offers a variety of off-campus housing options. Information sources for off-campus housing include: (1) the Off-Campus Housing List, published weekly by ASUI (UI's student government) and available at the Student Union Building, phone 208/885-6331, and (2) Moscow's daily paper, the *Moscow-Pullman Daily News*, phone 208/882-5561.

Recreational and Social Opportunities

The university offers nontraditional/adult students many opportunities to meet and share interests with other students.

On-Campus Living Groups. Students living in the residence halls or university apartment complexes are invited to participate in social and educational events organized by Residence Life staff members.

Women's Center. The Women's Center provides many programs and services to students (see "Women's Center" in part 2). The Women's Center hosts an orientation reception at the beginning of each semester for nontraditional/re-entry students. In addition, the Women's Center provides a gathering place for nontraditional students to meet each other, study, participate in a weekly noon discussion group, rest, care for infants, or to learn that they are not the only student over 30. The center also co-sponsors projects with other organizations to expand the public's awareness and knowledge of concerns and issues related to gender equity. The Women's Center is located mid-campus, on Line Street, and the phone number is 208/885-6616.

College and Department Organizations. Each of the university's colleges and departments sponsors clubs and honoraries for students in specific majors or interest groups. Contact college or department offices for information.

Student Union Activities. The Student Union organizes many programs and activities for students and their families. See "Recreational, Social, and Extracurricular Activities" in part 2.

Recreational Facilities. Campus recreational facilities include the Kibbie-ASUI Activity Center, indoor and outdoor tennis courts, a climbing wall, golf course, and two swimming pools.

Veterans' Services

See "Office of the Dean of Students" in part 2.

International Programs

The International Programs Office (IPO) has campus-wide responsibility for international activities, including international student recruitment, student and faculty exchanges, intensive English language training, and long- and short-term study abroad, and serves as a liaison with the community regarding international interests. IPO also acts as a clearinghouse for international education activities, training, development programs, and research agreements, and for faculty and student Fulbright scholarships, and provides support for international activities in the colleges. IPO is located in 216 Morrill Hall, telephone 208/885-8984; fax 208/885-2859.

International Students

International students are an integral part of the ethnic diversity of the University of Idaho. Representing more than 80 countries from around the world, international students contribute significantly to the rich cultural atmosphere of UI.

International student services are provided by international student advisers (ISAs) in IPO. All matters pertaining to students' status with the U.S. Immigration and Naturalization Service (INS) in the Department of Justice are handled by the ISAs, and they also serve as official liaisons between students and their consular offices or sponsoring agencies. ISAs are involved with the progress of international students at every stage of the educational process, and students are encouraged to visit an ISA regularly to discuss concerns or questions related to educational, financial, or cultural adjustments.

Once a student has been admitted, general information is provided about what to bring to the U.S., the U.S. educational system, and housing. A mandatory orientation before classes begin answers initial questions and provides new students with information and skills to succeed in their academic programs as well as tips on cultural adjustment. Community contacts are arranged through the International Friendship Association. The Students' International Association, a group of U.S. and international students, sponsors additional social, cultural, and educational activities.

International students who hold nonresident alien visas must either purchase health and extended accident insurance for themselves and all accompanying dependents or document coverage by equivalent insurance as part of their obligation to establish proof of financial responsibility for expenses incurred while attending the university. Failure to obtain and maintain the required insurance may subject students to sanctions, up to and including disenrollment. See the insurance section in this catalog for more information.

American Language and Culture Program

The American Language and Culture Program (ALCP) offers full-time programs in intensive English. Courses are offered throughout the year, with two eight-week sessions during each of the fall and spring semesters and one eight-week session in the summer. The program also offers specialized short-term programs by arrangement.

Students wishing to improve their English or achieve the required level of English language proficiency for admittance to UI can work toward

that goal while living on or off the UI campus and attending the American Language and Culture Program (ALCP). The curriculum emphasizes reading, writing, speaking, listening, and grammar skills at levels from beginning to advanced. At the University of Idaho, students who pass Level 5 may use their passing grades as a substitute for the English language proficiency examination at the level of the minimum university requirement, including the Test of English as a Foreign Language (TOEFL). Students take part in special cultural activities and learn about U.S. culture and U.S. university culture.

For more information and/or applications, contact the ALCP coordinator through the International Programs Office.

Applicants to the University of Idaho, please note: **Deferred admission** may be granted to applicants who qualify academically, but who have not yet met UI's minimum English language proficiency requirement. In deferred status, students enroll in UI's American Language and Culture Program to achieve their department's English language requirement prior to being granted full admission and commencing their degree programs.

Concurrent Enrollment. Concurrent enrollment is available to ALCP students at Levels 5 and 6. With the consent of the ALCP coordinator and the instructor of the desired course(s), ALCP students may take up to 7 credits of academic course work at the undergraduate and graduate levels while still remaining enrolled full time in ALCP.

Study Abroad

With access to 185 universities in 50 countries, the University of Idaho has the largest study abroad program in the state of Idaho and one of the most extensive programs in the Pacific Northwest. Each year more UI and other U.S. students take advantage of UI's quality study abroad programs.

With so many study sites throughout the world, students in virtually any field can enhance their UI education as well as chances for future employment. For example, students can study development issues in Fiji, engineering in Sweden, ecology in Costa Rica, or business in Italy. A number of these programs are taught in English so that students without foreign language skills are still able to study abroad. However, those students who are interested in learning a foreign language will find that there are also excellent opportunities for study overseas through one of the university's programs.

Some exchange programs such as Ecole Superiéure de Commerce de Chambéry, and Fachhochschule für Technik und Wirtschaft - Berlin offer the possibility for students to participate in an internship with a company or agency following their studies overseas. Other programs such as the University Studies Abroad Consortium enrich classroom teaching with regularly scheduled field trips to local sites or points of interest.

While program costs vary, in many cases a study abroad experience will cost about the same amount as studying on campus. Students receiving federal or state financial aid may be able to apply their entire award to UI study abroad programs.

Students may receive credit for study abroad or other experience overseas in the following ways:

1. Resident credit—students receive resident credit for all official UI study abroad programs. Students register under the 206, 406, or 506 study abroad course number within each department.
2. Transfer credit—in some instances, it may be possible to receive transfer credit for study at accredited foreign institutions that do not presently hold agreements with the University of Idaho, or through study abroad programs administered by other U.S. universities. IPO has a variety of reference materials available for students to look through.
3. Directed study—students may plan their own educational experiences abroad, and arrange *in advance* for credit from any appropriate department. This is for education comparable to that gained in the other courses of the department, but it may be as general and inclusive as the department will allow.
4. Course challenge—certain courses may be challenged on the basis of knowledge gained abroad. See regulation D-4.
5. External study/experience—credit may be awarded to students for knowledge and/or competence gained in foreign travel. See regulation I-5. In view of the documentation required, the procedure noted in 3 above is much more effective than this "after-the-fact" procedure.

UI participates in the following study abroad programs:

Study Abroad Programs	Placement Sites	Duration	Grades	GPA	Program Eligibility					Other Reqs
					Fr.	So.	Jr.	Sr.	Grad.	
International Student Exchange Program (ISEP)	111 institutions 39 countries	semester, year	P/F	2.75		x	x	x	x	Foreign language 14 cr.*
University Studies Abroad Consortium (USAC)	Costa Rica, Italy, Spain, Chile, France, Germany, Thailand, Australia, England, New Zealand, China, Malta, Denmark, Scotland, Israel	semester, year, summer	A/F	2.50-2.75	x	x	x	x	x	
Council of International Educational Exchange (CIEE)	33 institutions 24 countries	semester, year	A/F	2.50-3.00		x	x	x	x	Foreign language 8-14 cr.*
Pontificia Universidad Católica del Ecuador (PUCE)	Ecuador	year	P/F	2.50		x	x	x		Spanish 8 cr.
Southern Denmark Business School (SDBS)	Denmark	semester, year	P/F	2.50		x	x	x	x	Some business/ economics

Study Abroad Programs	Placement Sites	Duration	Grades	GPA	Program Eligibility					Other Reqs
					Fr.	So.	Jr.	Sr.	Grad.	
Fachhochschule für Technik und Wirtschaft Berlin (FHTW)	Germany	year	P/F	2.50		x	x	x		German 14 cr. Some business/ economics
Ecole Superiéure de Commerce de Chambéry	France	semester, year, summer	P/F	2.50		x	x	x		French 14 cr. Some business/ economics
Växjö University	Sweden	semester, year	P/F	2.50		x	x	x		Communication, education, political science, business majors
Luleå University	Sweden	semester, year	P/F	2.50			x	x	x	Engineering, computer science, business majors
Brighton University	England	fall semester	A/F	2.80			x	x		Physical education, dance, sport science and recreation majors
Sann-Nepal	Nepal	semester, year, summer	A/F	2.50	x	x	x	x		
Napier University	Scotland	spring semester, year	P/F	2.50		x	x	x	x	Communication, biology, chemistry, business, engineering majors
Universidad de Zaragoza	Spain	year	P/F	2.50		x	x	x		Spanish 14 cr.
Instituto Technológico y de Estudios Superiores de Monterrey (ITESM)	Mexico	semester, year, summer	P/F	2.50	x	x	x	x		
Haagse Hogeschool	Netherlands	semester, year	P/F	2.50		x	x	x		Some business/ economics
KCP International Language Institute	Japan	semester, year, summer	A/F	2.50	x	x	x	x		
Ecole des Mines de Saint Etienne	France	semester, year	P/F	2.50			x	x	x	French 14 cr. Engineering majors
University of Edinburgh	Scotland	semester, year	P/F	2.50	x	x	x	x		Forestry majors
Universität Siegen	Germany	semester, year	P/F	2.50	x	x	x	x		Chemistry majors
Autonomous University of Guadalajara	Mexico	semester, year	P/F	2.50	x	x	x	x		
The Mountain Institute	Nepal, Siberia, Peru	summer	A/F	2.50	x	x	x	x	x	

*Not all sites require knowledge of foreign languages.

All students who participate in UI study abroad programs do not pay their normal UI registration fees. Instead, they pay the program cost for each semester they are abroad.

All students participating in study abroad programs are required to be registered as full-time students unless special arrangements have been made.

For more information on study or work abroad or volunteering overseas, call or visit the study abroad coordinator in 209 Morrill Hall (telephone 208/885-4075). Information about the following programs can also be obtained from exchange program coordinators in the departments listed below:

PUCE: Foreign Languages and Literatures, Admin. 308A (208/885-5288)

Chambéry: Foreign Languages and Literatures, Admin. 308A (208/885-5288)

Zaragoza: Business, Admin. 342A (208/885-7342), and Foreign Languages and Literatures, Admin. 308A (208/885-5288)

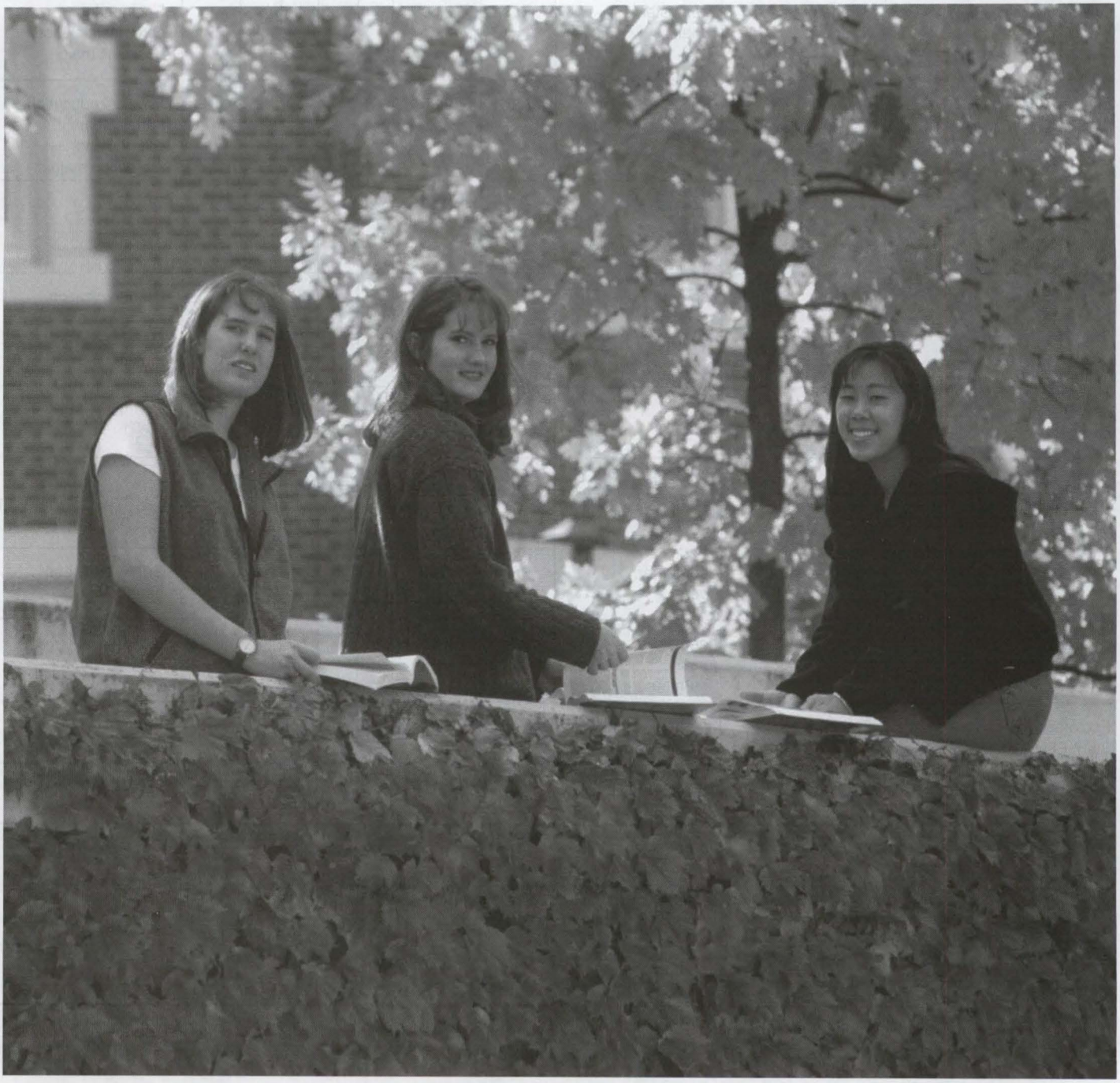
FHTW: Business, Admin. 342A (208/885-7342), and Foreign Languages and Literatures, Admin. 308A (208/885-5288)

SDBS: Business, Admin. 342A (208/885-7342)

ITESM: Business, Admin. 342A (208/885-7342), and Foreign Languages and Literatures, Admin. 308A (208/885-5288)

Haagse Hogeschool: Business, Admin. 342A (208/885-7342)

Brighton: HPERD, Physical Education Bldg. 108 (208/885-2189)



General Requirements and Academic Procedures

The following procedures and regulations have been adopted to help students, faculty members, and administrators carry out UI's overall academic program successfully. Students have the ultimate responsibility for meeting university, college, and departmental graduation requirements and academic procedures. Students, with the help of faculty advisers, should check their records each time they prepare to register to ensure that they are correctly and systematically fulfilling their degree requirements. It is the responsibility of advisers, major professors, and deans to assist students in understanding and complying with these requirements and procedures. The registrar assists by checking students' records for compliance with the regulations in this section of the catalog. Requests to waive curricular requirements, academic provisions, or academic standards should be presented to the appropriate department and/or college.

Students may petition the appropriate committee for exceptions to the administrative and academic regulations of UI. Petitions are submitted to one of the following committees depending on the nature of the petition.

Academic Petitions Committee. Student petitions for exceptions to the requirements and procedures in this catalog section (part 3) should be presented to the Academic Petitions Committee on forms available in college offices.

Academic Hearing Board. This committee hears student appeals from decisions made by college authorities concerning, but not limited to, such matters as (1) eligibility for advanced placement or credit by examination, (2) objectivity or fairness in making, administering, and evaluating class assignments, (3) maintenance of standards for conscientious performance of teaching duties, and (4) scheduling of classes, field trips, and examinations. The board does not hear appeals concerning requirements or regulations of the College of Graduate Studies or the College of Law.

Administrative Hearing Board. Students submit appeals to the Administrative Hearing Board on administrative decisions in such matters as residence status for tuition purposes, granting of student financial aid, and assessment of fees or charges (except in connection with parking regulations), and disputes involving interpretation and application of policies concerning such matters as student records, smoking, and treatment of disabled persons.

Appeals from decisions of the Academic Petitions Committee and the Academic Hearing Board are submitted to the provost. If the provost concurs with the body whose decisions was appealed, the appellant then may appeal to the president and regents if the president and regents consent to hear the appeal.

Decisions of the Administrative Hearing Board may be appealed to the president and regents when they consent to hear such appeals.

Rights Reserved to the University

Catalogs, bulletins, and course or fee schedules shall not be considered as binding contracts between UI and students. UI reserves the right at any time, without advance notice, to: **(1)** withdraw or cancel classes, courses, and programs; **(2)** change fee schedules; **(3)** change the academic calendar; **(4)** change admission and registration requirements; **(5)** change the regulations and requirements governing instruction in and graduation from UI and its various divisions; and **(6)** change any other regulations affecting students. Changes go into effect whenever the proper authorities so determine and apply not only to prospective students but also to those who are matriculated in UI. When economic and other conditions permit, UI tries to provide advance notice of such changes. In particular, when an instructional program is to be withdrawn, UI will make every reasonable effort to ensure that students who are within two years of completing graduation requirements, and who are making normal progress toward completion of those requirements, will have the opportunity to complete the program that is to be withdrawn.

UI also reserves the right, when a student has failed to discharge any obligation to UI, to deny that student the privilege of reregistering or to withhold the student's records or information based on the records. Students may verify the status of their accounts and be informed of any financial obligation to UI by inquiring at the cashier's window of the Business and Accounting Services Office in the Administration Office Building.

A—Matriculation

Applicants for enrollment in any course offered by UI for college credit, except correspondence study, submit personal data and credentials covering all previous academic work. (See "Undergraduate Admission to the University" or "Graduate Admission to the University" in part 2.) After UI has received these credentials and approved the application, registration access is given to the applicant and the applicant's first registration at UI concludes the matriculation process.

B—Registration

B-1. Registration Access. Registration access is given to new students as described above. It is also given to students enrolled within two years of the term in which they wish to register. Former students who have not been enrolled in UI within those two years should notify the Undergraduate or Graduate Admissions Office of their intention to reregister at least one month before the opening of the term. Such students will be required to submit transcripts from any institutions attended since their last registration at UI, and they may also be required to complete a residence questionnaire. Failure to meet the deadline may cause a delay in registration.

B-2. Admission to Classes.

B-2-a. Instructors do not admit anyone to class whose name does not appear on the class roster or for whom they have not signed an "add" card. UI professors are given the authority to grant or deny access to classes by visiting scholars.

B-2-b. Before the beginning of each academic session, students with their advisers' aid complete a trial study list. The information is checked by such intracollege procedures as the student's college may require. Once the adviser's block is removed from an individual student's record, the student registers for classes using the Web registration process. Signed "add" cards are taken to the Registrar's Office for those courses that require permission of the instructor or department. On payment of fees, admission to classes is authorized.

B-3. Auditing Classes. Auditing a course consists of attendance without participation or credit. Only lecture classes may be audited. Audited courses are not recorded on a student's permanent record, except as provided in the chart with regulation C-1.

B-4. Registration for Zero Credit. Any course offered for credit may be taken for zero credit. The implications of zero credit are:

B-4-a. Registrants are expected to do the assigned work and attend class sessions. Grades are received on the same basis as if the course were taken for credit and are entered on permanent records.

B-4-b. Students enrolled in a course for zero credit may take it P/F. This is separate from the "pass-fail option" outlined in B-11.

B-4-c. Courses taken for zero credit do not fulfill requirements.

B-4-d. Zero-credit grades have no effect on a student's grade-point average. Neither do they affect academic eligibility, disqualification, or reinstatement.

B-4-e. Students enrolled for zero credit count as regular registrants for statistical purposes, such as listing course enrollments, computing instructors' loads, and determining departmental services.

B-5. Correspondence-Study Courses. A student enrolled in the regular program is permitted to carry correspondence-study courses for college credit only with the prior written approval of his or her academic dean. Credit for correspondence-study courses will not be accepted without such approval.

B-6. Registration for Courses Without Completion of Prerequisites. Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

B-7. Registration of Lower-Division Students in Upper-Division Courses. All academic programs give priority in the first two years to meeting the general requirements for the appropriate degree and acquiring the foundation for advanced study; therefore, lower-division students may not take upper-division courses. Exceptions may be made for students who have fulfilled the prerequisites and who are well prepared in their field of study. In such cases, the instructor may, with the concurrence of the student's adviser and academic dean, authorize the exception.

B-8. Registration of Undergraduate and Nondegree Students in Graduate Courses. Undergraduate and nondegree students may register in graduate courses under the conditions outlined in the College of Graduate Studies section of part 4 with the prior written approval of the instructor of the course, the student's adviser, and the vice president for research and graduate studies.

B-9. Registration of Students with Baccalaureate Degrees as Undergraduates. To register as undergraduates, students with baccalaureate degrees must secure the permission of the dean of the undergraduate college and file a statement with the registrar indicating that they understand that the work will not be classified as graduate work and cannot be used toward a graduate degree at a later date. (See J-7-b and c.)

B-10. Registration for Accelerated and Other Short Courses. Students may register for accelerated and other short courses at any time up to and including the starting date of the course without petition.

B-11. Pass-Fail Option.

B-11-a. Undergraduate Students.

(1) After consultation with their advisers, undergraduates who have a cumulative grade-point average of 2.00 or higher are permitted to enroll in one course a semester under this P/F option. (The grade-point requirement is not applicable to students who are taking university-level courses for the first time.) This procedure is separate from taking courses that are regularly graded P/F. Within the limitations specified above, an undergraduate may enroll under the pass-fail option in any course EXCEPT: **(a)** courses listed by number and title in the student's major curriculum as printed in part 5; **(b)** courses taken to meet the distributional requirements of the college or curriculum, unless allowed for P/F enrollment by the department in which the student is majoring; **(c)** courses in the major subject field; and **(d)** courses in closely related fields that are excluded from this option by the student's department. (See B-11-d for "Reporting of Grades.")

(2) Students in officer education programs (OEP) may enroll under this regulation in courses required because of their affiliation with the OEP ONLY with the permission of the administrator of the OEP department concerned.

(3) A maximum of 12 credits earned in courses under this regulation may be counted toward a baccalaureate degree.

B-11-b. Graduate Students.

(1) With the approval of the major professor concerned (or adviser in the case of an unclassified student) and the vice president for research and graduate studies, graduate students may enroll in a limited number of courses under this P/F option. This procedure is separate from taking courses that are regularly graded P/F.

(2) Courses that may be taken by graduates under this regulation are: **(a)** any course that the student's graduate committee deems not essential to the major field and **(b)** any course required to remove a deficiency or to provide background for the student's program, unless the major department stipulates that such deficiency courses must be taken on a regular-grade basis and completed with an A or B.

(3) Of the minimum number of credits required for a degree, no more than three credits in a master's or specialist program or nine in a doctoral program may be taken under this P/F option.

(4) To have P recorded for courses taken under this regulation, a graduate student must earn a C or above. A grade of D will be converted to an F on the student's records.

(5) An unclassified student may enroll for courses under this option with the approval of his or her adviser (if assigned) and the vice president for research and graduate studies. If, however, at a later date an unclassified student is admitted to a degree program, the above regulations apply and no changes to regular letter grades will be permitted.

B-11-c. Adds, Drops, and Changes. Students may add or drop a P/F option course in the same manner as a regular course, and they may change from P/F to regular-grade classification, or vice versa, if they do so no later than the deadlines stated in regulation C and the academic calendar. Students may make these changes by securing the signatures of the adviser or major professor and dean concerned.

B-11-d. Reporting of Grades. Instructors are not notified as to which students are enrolled in courses under this P/F option. Grades are reported in the same manner as grades in courses taken on a regular-grade basis. **The registrar is responsible for converting Cs or above to Ps on students' records and, for graduates, Ds to Fs. Grades of D reported for undergraduates are recorded on students' records and are not converted.**

B-12. Registration for Fewer Credits than Authorized. Students may register for a particular course for fewer credits than indicated in the Time Schedule (they may also register for zero credit under the conditions outlined in B-4); likewise, departments may list courses in the Time Schedule for fewer credits than the number authorized by this catalog.

C—Changes in Registration

C-1. Students may change their registration as provided in the "Semester Schedule for Changes in Registration" accompanying this regulation. All registration changes are effective on the date they are filed with the registrar, except in the case of withdrawal from the university before the end of the second week following midterms, which is effective on the official last date of attendance as shown on the withdrawal form (see G). Students may not drop a course by simply staying out of class. Students are expected to obtain the signature of the adviser on the drop card.

Semester Schedule for Changes in Registration

See calendar in the front of the catalog for dates. The schedule for changes in enrollment in accelerated or short courses or during summer session is prorated, based on the number of class meeting hours (see notes below). The calendar in the summer bulletin lists the dates for summer session.

DESIRED CHANGE	First six days of classes*	Seventh day of classes through fourth week*	Fifth week to end of second week following midterms**	After end of second week following midterms***
Drop course	Drop course on line, if withdrawal is permitted (see regulations C-1 and C-2). No grade recorded and credits do not count in 20-credit limit for withdrawal.****		Permission of adviser required. File form with registrar. Grade recorded as withdrawal (W) and counted in 20-credit limit for withdrawal.****	For compelling reasons only, upon successful petition to Academic Petitions Committee (file petition through dean's office). Grade recorded as withdrawal (W) and counted in 20-credit limit for withdrawal.****
Add course (regular credit or audit).	Add course on line.	Permission of instructor and adviser required. File form with registrar.		
Change course section.	Change section on line.	Permission of instructor of new section required. File form with registrar.		

DESIRED CHANGE	First two weeks of classes*	Third and fourth weeks*	Fifth week to end of second week following midterms**	After end of second week following midterms***
Change from regular credit to audit.	File form with registrar. No grade recorded.		Permission of adviser required. File form with registrar. Grade of W recorded and counted in 20-credit limit for withdrawal.	Not permitted.
Change from audit to regular credit.	File form with registrar.	Permission of instructor, adviser, and dean required. File form with registrar.		
Change from regular basis to pass-fail or reduce number of credits in course.	File form with registrar.		Not permitted.	
Change from pass-fail to regular basis.	File form with registrar.	Not permitted.		
Register late.	File form with registrar.	File form with registrar. Pay late-registration fee.	For compelling reasons only, upon successful petition to Academic Petitions Committee (file petition through dean's office). Pay late-registration fee.	
Withdraw from university. (See regulation G.)	Obtain form from the Office of the Dean of Students, academic dean's office, or Registrar's Office, then file it in academic dean's office or Registrar's Office. No grade recorded.		Obtain form from the Office of the Dean of Students, academic dean's office, or Registrar's Office, then file it in academic dean's office or Registrar's Office. Grade recorded as withdrawal from university (WU) and credits do not count in 20-credit limit for withdrawal.****	For compelling reasons only; complete medical withdrawal or petition Academic Petitions Committee (file petition through dean's office). Grade recorded as withdrawal from university (WU) and credits do not count in 20-credit limit for withdrawal.****
Change in undergraduate curriculum or major. (Consult the College of Graduate Studies section of part 4 for procedures applicable to graduate students.)	Anytime. File form with registrar. The request to change must be approved by the dean of the college in which the new curriculum is offered. If the new curriculum is in a different college, students must meet the admission requirements of that college. Students must also see the dean of the college they are transferring out of for counseling and information purposes (not for permission to transfer). A UI cumulative grade-point average of 2.00 or better is normally required to transfer from one UI college or another; however, any student may transfer to the General Studies Program by consulting the director of the program (the signatures in this case are only to certify that the student's academic records have been forwarded). The change of curriculum is official when the student files the completed form with the registrar.			

* In the case of accelerated or short courses, when no more than 12.5 percent of the class-meeting hours have been completed.

** In the case of accelerated or short courses, after 12.5 percent but less than 60 percent of the class-meeting hours have been completed.

*** In the case of accelerated or short courses, after 60 percent of the class-meeting hours have been completed.

**** In the College of Law, consult the dean's office for information concerning grades assigned when students withdraw from law courses after the second week of classes.

C-2. Credit Withdrawal Limitation.

C-2-a. The number of credits that may be dropped and recorded on the student's permanent record is limited to 20 credits during a student's undergraduate career at UI. Petitions must be submitted to the Academic Petitions Committee to drop more than 20 credits during a student's undergraduate career at UI.

C-2-b. If a student attempts to drop a course that would bring the total credits he or she has dropped above 20, the student will not be allowed to do so. If a student attempts to drop two or more courses simultaneously and together they would bring his or her total credits dropped above 20, the student will be asked, through the dean's office, to submit a revised request to drop only one course or a combination of courses that would not cause the limitation to be exceeded. If the student cannot be reached or fails to submit a revised request, the registrar will record dropping the course or combination of courses that bear the highest course numbers and not cause the limitation to be exceeded; the dropping of the remainder will not be allowed.

C-3. Adding a Course. As shown in the chart accompanying this regulation, a course may be added on line during the first six days of classes. Beginning with the seventh day of classes, the student must file a form with the registrar that includes the signature of the instructor and the adviser. A course may be added with permission as long as the number of instructional weeks left in the semester (not including final exam week) equals or is greater than the number of credits for the course.

D—Credit and Continuing Education Unit

D-1. Unit of Credit Defined. One unit of credit represents what a typical student might be expected to learn in one week of full-time study (40-45 hours including class time and preparation). Each course is evaluated by a system of credits related to time spent in class, lab, study-preparation, or field investigation. A semester credit is expected to require a total of three hours of scholarly activity each week. Ordinarily one 50-minute hour of class attendance is scheduled for each credit, but any combination of class attendance, lab, study-preparation, or field investigation may be arranged. Credit for workshops and similar short courses is granted on the basis of one semester credit for at least 45 hours of scholarly activity. Exceptions

to this policy for undergraduate courses must be approved by the University Curriculum Committee. Exceptions for graduate courses must be approved by the Graduate Council and the University Curriculum Committee.

D-2. Credit-Load Limitations. (Also see J-5.) The maximum loads specified below include credits for which the student is concurrently registered at other institutions (e.g., Washington State University and Lewis-Clark State College).

D-2-a. Regular Semester.

(1) An undergraduate student may register for no more than 20 credits in a semester. This number may be increased to 22 with specific written approval by his or her academic dean. Registration for more than 22 credits (except for students enrolled in the WAMI Medical Education Program) is permitted only on approval of a petition to the Academic Petitions Committee (petition forms are available in deans' offices). See the College of Graduate Studies section of part 4 for the credit limitation for a graduate student who is not a graduate assistant.

(2) Registration for courses with conflicting or overlapping meeting times is prohibited, unless the instructor of each affected course agrees in writing to the conflict. Each instructor must sign an add form with the statement that he or she has approved the conflicting or overlapping meeting times and the student must submit the add form to the Registrar's Office.

D-2-b. Summer and Other Sessions. Credit limitations for summer and other sessions are as follows:

Weeks	Credit Limitations
12	15
11	15
10	15
9	13
8	12
7	10
6	9
5	7
4	6
3	4
2	3
1	1

Registration for courses with conflicting or overlapping meeting times is prohibited. **This regulation prohibits students from registering for two 1-credit workshops in the same week.** Registration for more than the above stated limits is permitted only on approval of a petition to the Academic Petitions Committee (petitions are available in the deans' offices) or by prior approval of the University Curriculum Committee.

D-2-c. Graduate-Student Appointees. A graduate assistant may register for no more than 12 credits in a semester or 6 credits in an eight-week period. On the written recommendation of the employing dean and approval by the vice president for research and graduate studies, an appointee is permitted to register for more than 12 credits in one semester but not more than an aggregate of 24 credits during two successive academic-year semesters.

D-2-d. Full-Time Employees. A full-time UI employee may register for no more than six credits in a semester or three credits in an eight-week period. Written approval by the employee's departmental administrator and dean or director must accompany the registration form.

D-2-e. Nondegree Students. A nondegree students may register for no more than 7 credits each semester and may complete a maximum of 32 semester credits. Upon completion of 32 semester credits, the student must either be admitted as a degree-seeking student at UI or submit a letter of appeal to continue as a nondegree student.

D-3. Transfer Credit. Credit is accepted for work completed in accredited institutions of higher education as provided in the regulations covering the admission of transfer students. (See "Transfer Admission Requirements" in part 2; also see E-4 and J-5.)

D-4. Challenged Courses (Credit by Examination). Degree-seeking students may challenge UI lecture and associated laboratory courses—earn credit by examination—as follows:

D-4-a. No examinations under this regulation may be conducted during the last two weeks of any academic session.

D-4-b. Students are not permitted to challenge a prerequisite course after having completed the advanced course or to challenge a course after already having received a grade in it. (See I.)

D-4-c. Credit in courses offered by the College of Law may not be obtained by this procedure.

D-4-d. Students must submit evidence to the instructor that they have sufficient knowledge to challenge a course. After a student has been granted permission to challenge a course by the instructor, by the administrator of the department in which the course is offered, and by his or her academic dean, the advanced standing exam fee is paid and the complete petition is filed with the registrar. The registrar checks the student's record and, if the student is eligible to take the advanced-credit examination, notifies the instructor to proceed with the examination.

D-4-e. Undergraduates must score C or higher to pass and obtain credit. Graduates must score B or A to pass and obtain credit. A passing grade is entered as P and is not included in grade-point computations. If students do not meet these standards, no entry is made on their records.

D-4-f. Results of the challenged courses must be forwarded to the registrar no later than the beginning of the last week of the semester. In the case of graduate students, the results are sent to the registrar via the chair of the student's major department and the vice provost for research and graduate studies.

D-5. Review and Prerequisite Courses. Students will not receive credit for courses taken in review or for courses that are prerequisites of courses they have already completed in the same subject area, except as stated in I-1.

D-6. Continuing Education Unit. Learning activities for which regular university-level credits are not awarded may be evaluated by a system of uniform continuing education units. Such units are granted in accordance with the following guidelines, which are set forth by the (national) Task Force on the Continuing Unit: A continuing education unit is expected to require 10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instructors. Continuing education, as used in this definition, includes all instructional and organizational learning experiences in organized formats that impart noncredit education to post-secondary-level learners. These properties of continuing education may be applied equally under the system regardless of the teaching-learning format, program duration, source of sponsorship, subject matter, level, audience, or purpose. The number of units to be awarded is determined by considering the number of contact hours of instruction, or the equivalent, included in the educational activity. Reasonable allowance may be made for activities such as required reports, lab assignments, field trips, and supervised study.

E—Grades

E-1. Grading System.

E-1-a. For purposes of reporting and record, academic work is graded as follows: **A**-superior; **B**-above average; **C**-average; **D**-below average; **F**-failure; **I**-incomplete work of passing quality (see regulation F); **W**-withdrawal; **WU**-withdrawal from the university; **P**-pass (see below); **IP**-in progress (see E-2); **N**-unsatisfactory and must be repeated (used only in Engl 090, 101, and 102 and Chem 050).

E-1-b. Grades of P may be reported at the option of the department on a course-by-course basis in noncompetitive courses such as practicum, internship, seminar, and directed study. Grades of P are also reported in courses carrying the

statement, "Graded P/F," in the course description. In courses in which Ps are to be used, the method of grading will be made known to the students at the beginning of the semester, and the grading system will be uniform for all students in the courses, except as provided in B-4-b. Grades under the pass-fail option are not affected by this regulation because the conversion of the regular letter grade is made by the registrar after instructors turn in the class rosters.

E-1-c. Midsemester grades in undergraduate courses must also conform to the above regulations. It is permissible to report Ps at midsemester ONLY in courses that have been approved for grading on this basis.

E-2. IP Grades.

E-2-a. Grades in Undergraduate Senior Thesis or Senior Project. The grade of IP (in progress) may be used to indicate at least minimally satisfactory progress in undergraduate courses such as senior thesis or senior project that have the statement "May be graded IP" in the course description. When the thesis or project is accepted, the IP grades are to be removed (see E-2-c). Grades of IP in undergraduate courses are considered to represent grades of at least C or P. If, in any given semester, the instructor considers the student's progress unsatisfactory, an appropriate letter grade (D or F) should be assigned for that semester.

E-2-b. Grades in Graduate Research Courses. The grade of IP (in progress) may be used in courses 500 (Master's Research and Thesis), 599 (Research), and 600 (Doctoral Research and Dissertation). When the thesis, dissertation, or other research document is accepted, or when a student ceases to work under the faculty member who is supervising his or her research, the IP grades are to be removed (see below). Grades of IP in graduate courses are considered to represent at least grades of B or P. If, in any given semester, the faculty member supervising the student's research considers the student's progress unsatisfactory, a regular letter grade (C, D, or F) should be assigned.

E-2-c. Removal of IP Grades. Departments may use on a department-wide basis either the P/F grading system, or regular letter grades, as well as P, when removing the previously assigned IP grades (e.g., a student who enrolled for six credits in course 500 one semester, four credits another semester, and five credits an additional semester could have 15 credits of IP grades removed with different grades for each of the blocks of credit registered for each semester, such as six credits of A, four credits of B, and five credits of P).

E-3. Grades in Law Courses. For additional provisions applicable to grades in law courses, see the College of Law section in part 4.

E-4. Computing Grade-Point Averages. Grades are converted by assigning the following number of points per credit for each grade: A-4, B-3, C-2, D-1, F-0. In computing the grade-point average, neither credits attempted nor grade points earned are considered for the following: courses graded I, IP, P, W, WU, or N, correspondence courses, advanced placement credit, credit by examination, or courses taken at another institution. Credit earned at non-U.S. institutions is recorded as pass (P) or fail (F).

[The UI considers only the Institutional grade-point average official. Although both institutional and overall grade-point averages are printed on transcripts, the overall grade-point average (which includes transfer courses) is informational only. To calculate a grade-point average divide the *Quality Points* (course credits times the points assigned for the grade earned) by the *GPA Hours* (course credits attempted not including grades of I, IP, P, W, WU, or N). *Earned Hours* indicate the total number of semester credits successfully completed (course grades of A, B, C, D, or P earned). Grades of P are included in *Earned Hours* but do not earn any quality points; grades of F are included in *GPA Hours*, but not in *Earned Hours*.]

E-5. Replacing Grades.

E-5-a. Some courses are listed in this catalog as "repeatable" (i.e., the credits listed for the courses show a maximum number of credits that may be earned or show "cr arr" or "max arr" indicating that the courses may be repeated for credit without restriction as to maximum). Other courses show one credit entry for the course (e.g., "1 cr," "2 cr," etc.) and may be taken only once for credit (see procedure for repeating to replace a grade below). Students, however, may repeat such "nonrepeatable" courses for zero credit. [See the section entitled "Credit Designations" at the beginning of Part 6 of this catalog for more information.]

E-5-b. Replacing a Grade by Repeating a Course. A student who has received a D or F in a course at UI or elsewhere may repeat the course at UI in an effort to replace the grade once, provided a more advanced course in the same subject field for which the first course is a prerequisite has not been completed in the meantime. Although all grades remain on the record, all grades beginning with the first repeat are averaged for grade point purposes. (See the College of Law section in part 4 for the exception to this regulation applicable to students in that college.)

E-5-c. Credit Repeat-to-Replace-Grade Limitation. The number of credits that may be repeated to replace a grade is limited to 20 credits during a student's undergraduate career at UI. Petitions must be submitted to the Academic Petitions Committee to repeat to replace a grade beyond the 20-credit limit during a student's undergraduate career at UI.

[Note: Since Fall Semester 1998, a student who repeats a course to replace a grade of D or F does so as if he or she is taking the course for the first time. In accordance with E-5-b, if the student repeats the course again, the grade earned by that repeat is the one used in the calculation of the grade-point average. Any repeats to replace D or F grades before the Fall Semester 1998 are not included in the 20-credit maximum stipulated in E-5-c.]

E-6. Reports of Grades and Grade Changes. Grades are reported to the registrar for all courses at the end of each academic session and at midsemester for undergraduate courses (see deadlines in the academic calendar). The assignment of grades and changes in grades are the sole prerogative of the instructor and are reported by the instructor directly to the Registrar's Office on forms provided by that office. With respect to grade changes, an instructor may only change a grade to a new grade that he or she could have assigned initially. After a grade has been reported to the registrar, it may not be altered except by a written request stating the reasons for the alteration, signed by the instructor who submitted the original grade. If it is determined that a grade change is warranted and the instructor cannot be reached, the departmental administrator may assume the prerogatives of the instructor in connection with the grade change.

F—Grades of "Incomplete"

F-1. A grade of "Incomplete" is assigned only when the student has been in attendance and has done satisfactory work up to a time within three weeks of the close of the semester, or within one week of the close of the summer session. It may be assigned in the case of withdrawal from UI only if the withdrawal occurs within the last three weeks of the semester. If a final grade of "Incomplete" is recorded, the instructor specifies in writing on the class roster what the student must do to make up the deficiency. The instructor also specifies the grade that is to be entered on the student's record in the event that the incomplete work is not made up by the deadline.

F-2. Removal of "Incomplete" Grades. Incomplete work should be made up within six weeks after the first day of classes of the following academic semester (not including summer session). A grade of "Incomplete" that is not removed before that date automatically converts to the grade specified by the instructor on the class roster (see F-1) unless the student previously has filed with the registrar a "Permit for Extension of Time" card, signed by his or her academic dean and the instructor concerned. If the "Incomplete" grade is not removed within the six-week period, the period may be extended once for not more than one calendar year from the date such extension is approved. If an extension is granted and the work is not made up before the expiration date, the grade automatically reverts to the grade

specified by the instructor on the class roster. It is the student's responsibility to see that the incomplete work is made up before the expiration date. The instructor must submit a "Removal of Incomplete" card to the registrar within 72 hours following the expiration date. In some cases, a student's eligibility to reregister is contingent on removal of "Incomplete" grades. In such cases, an extension of time for removal of the grades may not be granted. Moreover, if a student becomes academically disqualified (see L) when an "Incomplete" grade is removed, his or her registration may be cancelled. [See E-6 for further discussion on conditions for grade changes.]

F-3. "Incomplete" Grades on Record at End of Final Term. A student cannot graduate with a grade of "Incomplete" on his or her record. At the end of the term in which the student applies for a degree, a grade of "Incomplete" in any UI course reverts to the grade that the instructor had specified on the class roster (see F-1). Reverted grades that replace grades of "Incomplete" at the end of the final term are included in the computation of the student's cumulative grade-point average at graduation. Nonetheless, a student who has graduated may make up the incomplete work within the usual time limit in an effort to raise the grade on the permanent record.

G—Withdrawal Procedures.

G-1. Standard Withdrawal Procedures.

G-1-a. A student who wishes to withdraw from UI before the end of the second week following midterms may begin the process of withdrawal at his or her college dean's office or the Registrar's Office. Withdrawal forms can be picked up at the Office of the Dean of Students, the college dean's office, or the Registrar's Office. The official last date of attendance is indicated on the form and the request is not official until it is processed in the Registrar's Office. See regulation G-I-b for withdrawal from the university after the end of the second week following midterms.

G-1-b. A student is permitted to withdraw from UI after the end of the second week following midterms for compelling reasons only and after approval by the Academic Petitions Committee *or* after completing a medical withdrawal as explained in G-2. Examples of compelling reasons are: serious illness or injury of the student or death or serious illness or injury in the student's immediate family. Petitions for permission to withdraw after the end of the second week following midterms are forwarded *via the student's academic dean* to the Academic Petitions Committee on forms available in department and college offices. If the student's petition is approved, the Academic Petitions Committee will determine the effective date of the withdrawal. (See "Refund of Fees" in part 2.)

G-2. Medical Withdrawal Procedures.

G-2-a. The director of the Student Health Service is authorized to grant or require a student's withdrawal from UI for medical reasons.

G-2-b. Voluntary Medical Withdrawal. Students desiring to withdraw from UI for medical reasons will consult the director of the Student Health Service who will evaluate the request. If granted, the dean of students will be notified in writing to process the medical withdrawal.

G-2-c. Emergency Transfer to Institutional Care. The director of the Student Health Service is authorized to act as the representative of the president in emergencies that, under Idaho laws, require the transfer of a student to a community or state health facility. The student may be granted a medical withdrawal from UI at the discretion of the director.

G-2-d. Mandatory Medical Withdrawal. It is the responsibility of the dean of students to order a medical examination of a student if the dean has reason to believe that the student has a serious medical or psychiatric disability that substantially threatens or interferes with the welfare of the student, other members of the university community, or the educational processes of the university. The dean notifies the student and the director of the Student Health Service that such an evaluation is to be conducted. This process may be started by the director of the Student Health Service for patients under care or counseling by notifying the student and the dean of students in writing.

(1) Request for Evaluation. On notification from the dean of students, the director of the Student Health Service requests the student to undergo immediate professional evaluation by the director or the director's designee, or, at the student's request and expense, by a private physician or psychiatrist deemed appropriate by the director. A report of this evaluation is presented to the director with a specific recommendation as to whether a medical withdrawal is warranted.

(2) Evaluation Conference. The director of the Student Health Service provides the student written notice of a time and place at which the director and student will confer on the final determination as to mandatory withdrawal. The student may have the assistance of a representative at this conference. The director refers to reports, recommendations, and evaluations pertinent to the case and is empowered to request additional relevant medical or psychiatric examinations of the student.

(3) Determination of Director. Based on the evaluation and the conference, the director of the Student Health Service may determine: **(a)** that mandatory withdrawal **is** warranted by the student's medical or psychiatric condition; **(b)** that mandatory withdrawal **is not** warranted by the student's medical or psychiatric condition; or **(c)** that the student may remain enrolled subject to conditions specified by the director. The director transmits this decision in writing to the student and the dean of students. If withdrawal is ordered, the dean will process it.

(4) Finality of Determination. Decisions made by the director of the Student Health Service pursuant to these procedures are final.

(5) Refusal of Evaluation. If, after a request by the director of the Student Health Service, the student refuses to consult with a physician or psychiatrist, the director will, if practicable, seek the help of the student's family in persuading the student to seek appropriate professional assistance. Should these efforts not result in the student taking the desired action, the director summarizes the steps taken to secure needed information and the reasons for the withdrawal and instruct the dean of students to process the withdrawal. A copy of this order for withdrawal is sent to the student. The dean will process the withdrawal as mandatory, but involuntary.

(6) Appeal. A student may appeal to the coordinator of student services either **(a)** to revoke the order of the dean of students for a medical examination or **(b)** in case a procedural error is alleged, to order the determination of the director of the Student Health Service reopened.

G-2-e. Any student placed on medical withdrawal may, if appropriate, be informed, in writing, by the director of the Student Health Service, that he or she is eligible to return to UI at a later date on the favorable recommendation of the director. When applying for readmission, the student is responsible for providing the director with evidence of satisfactory treatment of the condition that necessitated medical withdrawal. Medical withdrawals are subject to the same refund rules and procedures as other withdrawals (see "Refund of Fees" in part 2).

G-3. Grades for Students Who Withdraw. Grades for a student who withdraws are recorded as provided in C and F-1. A student who withdraws from, or leaves, UI without official approval will receive Fs in all courses in which he or she is registered and for which the grade has not already been assigned.

H—Final Examinations

H-1. The last five days of each semester are scheduled as a final exam week (two-hour exams) in all divisions except the College of Law. The following provisions apply:

H-1-a. No quizzes or exams may be given in lecture-recitation periods during the week before finals week. Exams in lab periods and in physical education activity classes, final in-class essays in English composition classes, and final oral presentations in speech classes are permitted.

H-1-b. Instructors must meet their classes during the exam period for which they are scheduled in the finals week, either for an exam or for a final class session.

H-1-c. Final exams or final class sessions are to be held in accordance with the schedule approved by the Faculty Council and published in the Time Schedule. Instructors may deviate from the schedule only on the recommendation of the college dean and prior approval by the provost or provost's designee.

H-1-d. Where exams common to more than one course or section are required, they must be scheduled through the Registrar's Office and are regularly held in the evening.

H-1-e. Students with more than two finals in one day are permitted, at their option, to have the excess final(s) rescheduled to the conflict period or at a time arranged with the instructor of the course.

H-1-f. Final grades for each course must be filed with the registrar within 72 hours after its scheduled exam period.

H-1-g. Athletic contests are not to be scheduled during finals week; further, if a change in the calendar causes a scheduled athletic contest to fall within finals week, every reasonable effort must be made to reschedule the athletic contest.

H-2. Students who miss final exams without valid reason receive Fs in the exams. Students who are unavoidably absent from final exams are required to present evidence in writing to the instructor to prove that the absence was unavoidable.

H-3. Instructors, with the concurrence of their departments, may excuse individual students from final exams when such students have a grade average in the course that will not be affected by the outcome of the final exam. In such instances, the grade earned before the final exam is to be assigned as the final grade.

H-4. Early final exams are permitted for students, on an individual basis, who clearly demonstrate in writing that the reasons for early final exams are compelling (such requests require approval by the instructor and by the administrator of the department and the dean of the college in which the course is offered).

I—Advanced Placement for Undergraduates

(NOTE: See part 2 for special fee for extramural credits.)

I-1. With prior approval by the administrator of the department concerned, undergraduate degree-seeking students may bypass an elementary course and enroll in a higher vertically related course. When subject mastery of the bypassed course is regarded by the department to be essential to the understanding of the advanced course, the student with a C or better in the advanced course is eligible to receive credit and a P for any bypassed courses in the same subject-matter area. The necessary forms must be filled out and forwarded by the department concerned. *Advisers should make sure that students are aware of this opportunity for obtaining advanced-placement credit.*

I-2. Students who have completed courses at other institutions after bypassing lower vertically related courses, but have not been awarded advanced-placement credit, will be granted such credit on completion of a yet higher vertically related course at UI.

I-3. Credit is granted for advanced-placement courses completed in high school in which a rating of 5, 4, or 3 is attained in College Board advanced-placement tests.

I-4. UI also grants credit for the successful completion of tests under the College Level Examination Program (CLEP), as approved for specific courses by UI departments, and for courses completed at military schools, as recommended by the American Council on Education.

I-5. With the approval of an ad hoc committee consisting of representatives from the colleges and departments involved (convened by the registrar) and payment of the applicable fees, an undergraduate may be awarded lower-division and/or upper-division (100-499 series) credit in recognition of university-level knowledge or competence gained in work and life situations outside of UI's jurisdiction, mass media, and independent reading and study. Examples of work and life situations outside UI's jurisdiction include knowledge or competence gained in business, industry, government, or community agencies, through travel or private study, or while studying at a proprietary institution. Petitions for such credit must be approved by the student's departmental administrator and academic dean, and must be supported by such evidence as is needed to provide a sound basis for evaluating the student's achievements. Credits granted under this regulation are recorded as "experiential learning" and a P is assigned. The applicability of credits earned through experiential learning toward the satisfaction of specific degree requirements will be determined by the department and division through which the degree is to be granted. (See J-5.) Petition forms for experiential learning are available from the Office of the Registrar.

I-6. Advanced-placement credit granted by other accredited institutions will be honored on transfer to UI. Students who have had advanced-placement credit granted by non-accredited educational sources may submit a petition to have the advanced-placement credit reviewed for transfer to UI.

I-7. A statement on all forms of advanced placement can be obtained from the Admissions Office.

J—General Requirements for Baccalaureate Degrees

Candidates for baccalaureate degrees must fulfill the following requirements. (See the College of Graduate Studies section of part 4 for the requirements for graduate degrees. See the College of Law section in part 4 for the requirements for the degree of Juris Doctor.)

J-1. Credit Requirements.

J-1-a. Students must have earned a minimum of 128 credits to be granted a baccalaureate degree from the University of Idaho. Some programs require a higher minimum. For the minimum number of credits required in each degree program, see the major curricula of the various degree-granting units in part 5.

J-1-b. A minimum of 36 credits in courses numbered 300 or above is required for a baccalaureate degree.

J-2. UI Course Requirements.

J-2-a. After a student has completed 88 credits, he or she must complete a minimum of 32 credits in UI courses. No credits awarded for correspondence study, bypassed courses, credit by examination, College Level Examination Program (CLEP), experiential learning, or technical competence can be counted among these 32 UI credits. Exceptions to this requirement are stated below; exceptions are also made for study abroad and student exchange programs with prior approval by the student's academic dean.

J-2-b. Candidates for baccalaureate degrees at UI centers away from the Moscow campus and candidates whose curricula specifically include a distance learning component or require the completion of courses offered by institutions other than UI are exempt from the requirement stated in J-2-a. Instead, they must complete a minimum of 32 of the last 64 credits in UI courses other than those offered by correspondence study.

J-2-c. Candidates for the B.S.Ed. degree in vocational education are exempt from the requirement stated in J-2-a;

instead, they must complete a minimum of 64 credits in UI courses other than those offered by correspondence study.

J-2-d. Candidates for the B.S.Ag.Ec. degree with a major in agribusiness at the Idaho Falls University Center are exempt from the requirement stated in J-2-a. Instead, they must complete a minimum of 32 of the last 64 credits in courses taught at the Idaho Falls University Center, and they must complete a minimum of 18 of the last 64 credits in courses taught by the University of Idaho.

J-3. Subject Requirements (Core Curriculum). A university education is a preparation both for living and for making a living. It offers an opportunity not only to lay the foundations of a career, but also to develop the mind to its highest potential, to cultivate the imagination as well as the power to reason, and to gain the intellectual curiosity that makes education a life-long enterprise. A central component of this preparation is the requirement that a student working toward a baccalaureate degree must complete 30-32 credits of course work in the five categories described below. This requirement is to be satisfied by earning the minimum number of credits specified for each category. (Transfer students have two options for fulfilling this requirement; these are described under "Admission Requirements" in part 2 of this catalog—see the section on "General Education Requirements for Transfer Students.") **Courses that have been approved for the fulfillment of the requirement in each category are listed below; students are advised to check with deans' offices for courses that may have been added after the publication of this catalog.** Generally, the approved courses are open to lower-division students and do not have prerequisites. Note: Though a given course may be listed under more than one category, it may be used to satisfy the requirement in only one category; remedial courses may not be used to satisfy any of this requirement. **Degree-seeking students must be enrolled in Math 107 or in a course that meets the core requirement in mathematical, statistical, and computer sciences and in Engl 090 or 101 or 102 in their first year in residence and in subsequent years until the core requirements in mathematical, statistical, and computer sciences and Engl 102 have been satisfied.**

J-3-a. Communication (5-7 cr). The purpose of this requirement is to develop the ability to organize one's thoughts, to express them simply and clearly, to observe the standards and conventions of language usage, and to suit tone to audience. The requirement is proficiency in written English equal to that needed for the completion of UI course Engl 102 and the completion of one additional course in this category.

Foreign Language. Students who receive a passing grade in any of the eight foreign language classes included in the core curriculum are expected to develop and demonstrate (1) sufficient communicative competency in a modern foreign language to be able to satisfy basic survival needs and social demands in a non-English speaking culture or, alternately, a grasp of the most basic vocabulary and elementary syntax of classical Greek or Latin and the ability to translate classical Greek or Latin passages of elementary difficulty at sight; (2) a greater awareness of and sensitivity to language, its structure and function as provided through the study of a modern or classical language; and (3) an understanding of fundamental language concepts and, through comparison with a modern or classical language, a more thorough understanding of how one's own language works.

Public Speaking. Students who receive a passing grade in Comm 101, Fundamentals of Public Speaking, are expected to develop and demonstrate the ability to make oral presentations in one-on-one settings, small groups, and large groups. Students should be able to demonstrate basic competency in (1) organization and preparation, (2) oral language use and presentation, and (3) addressing audience needs and interests.

Written English. Students who receive a passing grade in any of the five English classes included in the core are expected to develop and demonstrate competencies in their writing in (1) organization and development, (2) sentence variety and word choice, and (3) language usage conventions.

The following specific provisions apply to the English composition component:

(1) Students who attain a satisfactory score on the College Board English Achievement or Scholastic Aptitude (Verbal) Test or the American College Testing (ACT) English Test will be awarded credit and grades of P for Engl 101 and 102. Also, students who attain a score of 4 on the Advanced Placement Test in English will be awarded credit and a grade of P for Engl 101 and students who attain a score of 5 on the Advanced Placement Test in English will be awarded credit and grades of P for Engl 101 and 102.

(2) Students who do not meet the conditions stated in paragraph (1) will be tentatively placed, on the basis of their scores on the tests cited above, in either Engl 101 or 102.

(3) UI accepts credits earned in comparable writing courses taken at other accredited institutions. (See credit limitation in J-5-d.)

Chin 101, Chinese First Semester (4 cr)
Comm 101, Fundamentals of Public Speaking (2 cr)
Engl 207, Persuasive Writing (3 cr)
Engl 208, Personal and Exploratory Writing (3 cr)
Engl 209, Inquiry-Based Writing (3 cr)
Engl 317, Technical and Engineering Report Writing (3 cr)
Fren 101, Elementary French I (4 cr)
Germ 101, Elementary German I (4 cr)
Grek 341, Elementary Greek (4 cr)
Japn 101, Elementary Japanese I (4 cr)
Latn 101, Elementary Latin I (4 cr)
Russ 101, First Semester Russian (4 cr)
Span 101, Elementary Spanish I (4 cr)

J-3-b. Natural and Applied Science (8 cr—including two accompanying labs OR 7 credits—including CORE 201 and one course with lab). The purpose of this requirement is to develop a better understanding of the physical and biological world by learning some of the principles that explain the natural phenomena of the universe, the experimental method used to derive those principles, and their applications.

Study in this area is undertaken as part of the general education requirements in order to promote scientific literacy, that is, the ability to read and understand the science issues being debated in society. Scientific literacy is essential if citizens are to make informed judgments on the wide range of issues that affect their everyday lives. Students receiving passing grades in the natural and applied science courses of the core curriculum will demonstrate competency in the following areas: (1) knowledge of scientific principles; (2) the ability to write clearly and concisely using the style appropriate to the sciences; (3) the ability to interpret scientific data; (4) the ability to analyze experimental design critically; and (5) the development of laboratory skills.

Biol 100, Introduction to Biology (4 cr)*
Biol 201, Introduction to the Life Sciences (4 cr)*
Chem 100, Chemistry and the Citizen (4 cr)*
Chem 101, Introduction to Chemistry I (4 cr)*
Chem 111, Principles of Chemistry I (4 cr)*
Chem 112, Principles of Chemistry II (4 cr)*
Chem 113, Inorganic Chemistry and Qualitative Analysis (5 cr)*
CORE 201, Integrated Science (3 or 4 cr)
Ent/Biol 211, General Entomology (4 cr)*
EnvS 101, Introduction to Environmental Science, and 102, Field Activities in Environmental Sciences (4 cr)* (pilot offering)
Geog 100, Physical Geography (4 cr)*
Geol 101, Physical Geology (4 cr)*
Geol 102, Historical Geology (4 cr)*
MMBB 154, 155 Introductory Biology of Bacteria and Viruses (4 cr)*
Phys 100, Fundamentals of Physics (4 cr)*
Phys 111, General Physics I (4 cr)*

Phys 112, General Physics II (4 cr)*
Phys 211, Engineering Physics I (4 cr)*
Phys 212, Engineering Physics II (4 cr)*

*To be counted toward satisfaction of this requirement, the full four credits (that is, both the lecture course and the accompanying laboratory course or component) must be completed.

J-3-c. Mathematical, Statistical, and Computer Sciences (3 cr). Mathematical reasoning as a skill and as a theoretical structure has played a crucial role in modern civilization as well as in the everyday lives of individuals. The core curriculum requirement in mathematical, statistical, and computer sciences should, therefore, foster both an appreciation for the aesthetic and historical dimensions of these areas and a sense of their practical necessity.

The mathematics, statistics, and computer science courses will help students develop analytical, quantitative, and problem solving skills by involving them in doing mathematics, statistics, or computer science and by focusing on understanding the concepts of these disciplines.

Students receiving passing grades in mathematics, statistics, or computer science will have: (1) an understanding of key terms and concepts including a historical perspective of their origins and (2) the ability to recognize, analyze, and solve problems.

CS 101, Introduction to Computer Science (3 cr)
CS 112, Introduction to Problem Solving and Programming (3 cr)
Math 123, The Spirit of Mathematics (3 cr)
Math 130, Finite Mathematics (3 cr)
Math 137, Algebra with Applications (3 cr)
Math 143, Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 160, Survey of Calculus (4 cr)
Math 170, Analytic Geometry and Calculus I (4 cr)
Stat 150, Introduction to Statistics (3 cr)
Stat 251/Math 253, Principles of Statistics (3 cr)

J-3-d. Humanities (at least 6 cr) (note: students must earn 14 credits in a combination of humanities and social sciences core courses OR, if they have completed CORE 101-102, they must earn a total of 13 credits in a combination of humanities and social science courses, including the 7 credits earned in CORE 101-102). The purpose of this requirement is to explore the collective experience of humankind as it is reflected in literature, philosophy, the arts, and history. Each humanities course will be directed toward providing students with: (1) knowledge of key terms relevant to the discipline; (2) knowledge of theories and underlying assumptions relevant to the discipline; (3) knowledge of and ability to analyze the components out of which the works studied are constructed; (4) knowledge of and ability to recognize the historical contexts of works studied, as well as the underlying aesthetic, cultural, philosophical, and social influences; (5) the ability to develop and justify a point of view about matters of value and aesthetic taste among the sometimes-conflicting points of view of others; (6) the ability to acknowledge and critically evaluate divergent points of view; (7) the ability to discuss the subject intelligently and write about it effectively; and (8) the ability to extend the concepts of the course beyond the academic setting.

AmSt 101, American Identities (3 cr) (pilot offering)
AmSt 301, Interpreting America (3 cr)
Art 100, Visual Art (3 cr)
CORE 101-102, Core Discovery (7 cr)
Dan 100, Dance in Society (3 cr)
Engl 257 and/or 258, Literature of Western Civilization (3 cr each)
Intr 126, Film and International Culture (3 cr)
MusH 101, Survey of Music (3 cr)
Phil 103, Ethics (3 cr)
TheA 101, Introduction to the Theatre (3 cr)

J-3-e. Social Sciences (at least 6 cr) (note: students must earn 14 credits in a combination of humanities and social sciences core courses OR, if they have completed CORE 101-102, they must earn a total of 13 credits in a combination of humanities and social science courses, including the 7 credits earned in CORE 101-102). Courses in the social sciences provide instruction in the history of human societies and institutions, particularly political and economic ones, and the nature of human behavior, individual and collective. Overall, the social science core is expected to give students a solid basis in the following: (1) the knowledge of key terms, concepts, and schools of thought relevant to the selected disciplines; (2) the ability to recognize the historical context of the issues and works studied, as well as the underlying social, psychological, economic, and political influences; (3) the ability to recognize, analyze, and critically evaluate divergent points of view relevant to the above; (4) the ability to discuss the subjects intelligently and write about them clearly; and (5) the ability to apply the knowledge and skills gained to upper-division courses and to life beyond the classroom.

AmSt 101, American Identities (3 cr) (pilot offering)
Anth 100, Introduction to Anthropology (3 cr)
CORE 101-102, Core Discovery (7 cr)
Econ 201 and/or 202, Principles of Economics (3 cr each)
Econ 272, Foundations of Economic Analysis (4 cr)
Geog 200, World Regional Geography (3 cr)
Hist 101 and/or 102, History of Civilization (3 cr each)
PolS 101, Introduction to Political Science and American Government (3 cr)
Psyc 101, Introduction to Psychology (3 cr)
Soc 101, Introduction to Sociology (3 cr)

J-4. Grade Requirements. To qualify for the baccalaureate degree, a candidate must have a cumulative grade-point average of 2.00 or better. See exceptions under E-4 and E-5.

J-5. Credit Limitations. A candidate may count toward a baccalaureate degree no more than:

J-5-a. Seventy credits earned at junior or community colleges, or one-half of the total credits required for a student's intended baccalaureate degree, whichever is the higher number.

J-5-b. Forty-eight credits in any combination of credits granted for courses taken at vocational-technical schools, experential learning, technical competence, independent study (correspondence study), credit by examination, or advanced placement (such as CLEP, College Board advanced-placement tests, courses completed at military schools, and credit for bypassed courses). This 48-credit limitation may be exceeded for good cause with the approval of the Academic Petitions Committee (file petition through dean's office). **Note**: credits earned through any combination of external study and technical competence cannot exceed a maximum of 32 of the allowable 48 credits.

J-5-c. Twelve credits earned under the pass-fail option (see B-11).

J-5-d. Six credits in English composition.

J-5-e. Six credits in remedial-level courses; to be counted, these credits must have been earned before the fall semester 1983; no such credits earned after summer session 1983 may be counted.

J-6. Assignment of Curricular Requirements (Catalog Issue). In addition to fulfilling the general university requirements for degrees, candidates must satisfy the particular requirements specified for their curricula. The pertinent requirements are those contained in the UI catalog issue that was in effect at the time of or subsequent to the candidate's enrollment as a degree-seeking student at UI or another institution accredited by one of the regional agencies, such as the Northwest Association of Schools and Colleges. In any case, the catalog issue designated must have been in effect within seven years of the date on which the candidate is to receive the degree.

J-7. Second Baccalaureate Degree.

J-7-a. Students may concurrently pursue two different majors leading to two different baccalaureate degrees (e.g., B.A. and B.S.Ed.) from UI by working to fulfill the general university requirements for one degree and the departmental and college subject-matter requirements for each. For exceptions to this regulation, see notes with the curricula in general studies and agricultural science and technology in parts 4 and 5, respectively. Students who plan to pursue two degrees concurrently should develop a schedule of studies that combines the degree requirements and present it to the dean(s) of the college(s) concerned as early as possible, preferably before the end of the junior year.

J-7-b. Students who have earned a baccalaureate degree at UI and who wish to complete the requirements for a different major and receive a second baccalaureate degree must earn at least 16 credits in UI courses other than those offered by correspondence study after the receipt of the first degree and fulfill the departmental and college subject-matter requirements for the second degree. (See B-9.) Students may return to UI and earn a second degree carrying the same name as one previously granted by UI so long as the requirements for a different major are satisfied and the students earn at least 16 credits in UI courses other than those offered by correspondence study after the receipt of the first degree. For exceptions to this regulation, see notes with the curricula in general studies and agricultural science and technology in parts 4 and 5, respectively. This regulation does not apply to students who were concurrently pursuing two different degrees under regulation J-7-a or to students who were concurrently pursuing two different majors under regulation J-8.

J-7-c. Students who have a baccalaureate degree from another recognized institution and who wish to earn another baccalaureate degree at UI must earn a minimum of 32 credits in UI courses other than those offered by correspondence study after the receipt of the first degree and fulfill the departmental and college subject-matter requirements for the degree. (See B-9.)

J-8. Degree with Double Major. Students may complete two different majors (curricula) offered under a particular baccalaureate degree and have both majors shown on their academic records and diplomas, e.g., Bachelor of Arts with majors in history and political science. Each of the majors must lead to the same degree. When majors leading to different degrees are involved, see the requirements applicable to the awarding of a second baccalaureate degree (J-7).

J-9. Academic Minors.

J-9-a. An academic minor is a prescribed course of study consisting of 18 or more credits. For descriptions of minor curricula, see the programs of the degree-granting units in part 5. In the following paragraphs of J-9, "minor" denotes "academic minor," which is to be distinguished from "teaching minor"; for information on the latter, see the College of Education section of part 4.

J-9-b. A student may pursue one or more minors in addition to a major by filing with the registrar a declaration of intention to do so. Completion of a minor is required only if specified by the degree-granting unit, but any minor completed is recorded on the student's academic record.

J-9-c. Transfer credits may be applied to a minor with the approval of the department offering the minor; however, the last nine credits applied to completion of the minor must be earned in UI courses, through study abroad, or through student exchange programs, and may not include credits earned through correspondence study.

J-9-d. A student may complete an undergraduate minor even though he or she has already earned a baccalaureate degree. If the sole objective is to complete an undergraduate minor, the student normally registers as a major in the department offering the minor.

K—Academic Honors

K-1. Graduation with Honors. Candidates for baccalaureate degrees are graduated with honors if their cumulative grade-point averages are as specified in K-1-a, K-1-b, or K-1-c and if they have earned at least 56 credits in UI courses. No credits earned through correspondence study, bypassed courses, credit by examination, College Level Examination Program, experiential learning, or technical competence may be counted among these 56 credits. With prior approval by the student's academic dean, credits earned in special programs, such as study abroad and student exchange programs, may be counted. Candidates for the degree of Juris Doctor are graduated with honors under the same conditions, except that at least 88 credits in law courses are required and the grade-point average considered is based exclusively on the student's record in the College of Law. Honors are not awarded with degrees earned through the College of Graduate Studies.

K-1-a. Candidates whose grade-point averages would place them within the top 3 percent of graduates from their respective colleges over the preceding five years are graduated *summa cum laude* (with highest distinction).

K-1-b. Candidates whose grade-point averages would place them within the top 6 percent (but below the top 3 percent) of graduates from their respective colleges over the preceding five years are graduated *magna cum laude* (with great distinction).

K-1-c. Candidates whose grade-point averages would place them within the top 10 percent (but below the top 6 percent) of graduates from their respective colleges over the preceding five years are graduated *cum laude* (with distinction).

K-2. Dean's List. Students who are carrying 14 credits (10 in the College of Law) and attain a grade-point average of 3.30 (3.00 in the College of Law) for a given semester are placed on lists prepared for the college deans. (Except for grades of P earned in Engl 101 and 102, credits for which a student was graded P are not computed in the specified minimums.) These lists are publicized within UI and are distributed to news agencies.

L—Academic Standing, Probation, Disqualification, and Reinstatement

L-1. Academic Standing for Undergraduate Students. Students are considered to be in good academic standing when they have a semester and a cumulative grade-point average of 2.00 or higher.

L-2. Academic Probation for Undergraduates.

L-2-a. At the end of a semester, undergraduate students who do not attain the cumulative grade-point average required for their rank (see L-6) are placed on academic probation for the next semester of enrollment and are referred to the appropriate academic dean for advising. The effect of this probationary status is to serve notice that if a student's cumulative record at the end of the next semester in residence is unsatisfactory he or she will be disqualified and ineligible to continue at UI.

L-2-b. Students on academic probation who attain a cumulative grade-point average higher than the minimum required for their rank are automatically removed from probation.

L-2-c. Students on academic probation who attain a grade-point average of 2.00 or higher during the next or subsequent semester after being placed on probation, but whose cumulative grade-point average is still below the minimum required for their rank, remain on academic probation.

L-2-d. Because final grades for a probationary term may not be available until after a student has registered for an ensuing term, such registration must be considered tentative until the student's academic standing may be determined. If the student is disqualified at the end of the probationary term, the registration for the ensuing term is invalid and will be cancelled unless the student is reinstated (see L-4).

L-3. Disqualification for Undergraduates. Students on academic probation will be disqualified at the end of a probationary semester unless the minimum cumulative grade-point average required for their rank, or a semester grade-point average of at least 2.00, is attained. To reregister after being academically disqualified, students must be reinstated.

L-4. Reinstatement for Undergraduates.

L-4-a. After a first disqualification, students may be reinstated (i.e., have their eligibility to continue restored) by petition to and favorable action by the college in which they are enrolled OR by remaining out of UI for at least one semester. Summer does not qualify for a semester lay-out period.

L-4-b. After a second disqualification, students may be reinstated at any time only by petition to and favorable action by the college in which they are enrolled.

L-4-c. Students disqualified for a third time may be reinstated only after successful petition to the college in which they are enrolled and the Academic Petitions Committee.

L-4-d. Students who have been reinstated may continue to be reinstated with the approval of the dean of the college in which they are enrolled so long as they attain a 2.00 or better grade-point average for each semester following the first disqualification.

L-4-e. Students who attend another institution while under a first disqualification at UI will have an automatic reinstatement at UI if they maintain a grade-point average of 2.00 or higher at the other institution (see L-4-a). If a grade-point average of 2.00 or higher is not maintained, the student must meet the requirements applying to the admission of transfer students in order to reenter UI.

L-4-f. Students who are disqualified and reinstated are reinstated on academic probation.

L-5. Dean's Referral for Undergraduates. Students who attain a grade-point average below 1.50 during a given semester without dropping below the cumulative grade-point average required for their rank receive a dean's referral. Although this does not affect their eligibility to register, the students are referred to the appropriate academic dean for advising.

L-6. Academic Probation and Disqualification Cutoff by Rank for Undergraduates.

Rank (by Credits Earned)	Minimum Cumulative Grade-Point Average
0 through 32	1.60
33 through 64	1.80
65 and up	2.00

L-7. Registration Pending Removal of Incompletes for Undergraduates. Regulation F-2 provides that in cases where a student's eligibility to reregister is contingent on removal of incomplete grades, the student may not be granted an extension of time for such a removal.

L-8. Summer Session. Disqualification at the end of a spring semester does not affect a student's eligibility to continue in the immediately ensuing summer, but to register in any subsequent term the student must be reinstated.

L-9. Fresh Start. Qualified undergraduate students who wish to reenter the university in a specific degree program after a period of absence will be allowed a "Fresh Start" as described below.

L-9-a. To qualify for a Fresh Start, students (1) must not have been enrolled in any college or university as a full-time matriculated student for at least the five years immediately before applying for the program, (2) must have a UI cumulative GPA of less than 2.00, and (3) must be approved for the program by the college that administers the academic program they wish to pursue.

L-9-b. Once the student has completed an additional 24 credits of course work with a Fresh Start cumulative GPA of at least 2.00 and has been in the program at least two semesters, the cumulative GPA will be reset to 0.00 as of the time of admission to the Fresh Start Program.

L-9-c. Students in the Fresh Start Program will be allowed a maximum of six credits of "W" during the first two semesters after admission to the program. If the Fresh Start is successfully completed, the count for the 20-credit limit on withdrawals (see C-2) will be reset to 0 as of the time of admission to the Fresh Start Program.

L-9-d. University probation and disqualification regulations apply throughout the Fresh Start process.

L-9-e. To graduate with honors, a student in the Fresh Start Program must have at least 56 credits in UI courses after the Fresh Start (see K-1). Fresh Start Program participants are eligible for the dean's list (see K-2) on a semester-by-semester basis.

L-9-f. Application forms and explanatory materials are available at the Registrar's Office.

L-10. This regulation L does not apply to law, graduate, or full-time nondegree students. See the College of Graduate Studies section of part 4 for information on probation, disqualification, and reinstatement of graduate students. See the College of Law Announcement for information for law students.

M—Attendance, Repeated Absences, Field Trips, and Official Student Travel

M-1. Attendance. Students are responsible for class attendance; in all cases of absence, students are accountable for the work missed. In the case of officially approved absence and on the request of the student, the instructor is obligated to provide an opportunity for the student to make up for missed work. In general, an absence is considered "official" when the student is: (a) participating in an approved field trip or other official UI activity (e.g., athletics, debate, music, or theatre arts); (b) confined under doctor's orders; (c) called to active military duty during emergency situations; or (d) granted a leave of absence from UI for reasonable cause by his or her academic dean.

M-2. Repeated Absences. In courses where a substantial amount of the content can be mastered only or primarily through class participation, regular and punctual attendance is essential and may, therefore, be reflected in grading. Instructors will make clear at the beginning of each course the extent to which grades are dependent on attendance. Instructors may report to the registrar students who are repeatedly absent from classes (a form is available from departmental and college officials). Absences may be considered excessive when their number equals or exceeds the number of credits in a particular course.

M-3. Field Trips and Official Student Travel. "Field trip" is defined as any required, course-related student travel that exceeds 25 air miles from the campus or conflicts with other classes that the students involved are taking. (A trip taken within 25 air miles during the time scheduled for the particular class or at a time that does not conflict with other classes the students involved are taking is a "local trip," not a "field trip.")

M-3-a. Missed Class Work. Students participating in field trips, as defined above, or other official UI activities are responsible for conferring in advance with the instructors of any classes that will be missed in order to be eligible for making up missed class work. (See M-1.)

M-3-b. Approval of Course-Related Field Trips. Administrative approval for course-related field trips will be obtained by the person in charge of the trip as follows:

(1) Each field trip as identified in the catalog course description requires prior approval by the department in accordance with divisional procedures (application for

approval should be made at least one week before the expected departure).

(2) Each field trip NOT identified in the catalog course description requires prior approval by the departmental administrator, the dean of the college, and the provost (application for approval should be made at least two weeks before the expected departure).

M-3-c. Approval of Other Official Student Travel. Administrative approval for official student travel that is NOT course related is obtained from the vice president for student affairs (application for approval should be made at least two weeks before the expected departure).

M-3-d. Costs. When a college can cover all or part of the cost of a course-related field trip from allocated funds, the college should do so. If the college cannot cover the cost, or a portion thereof, the cost (or remaining portion) must be borne in proportionate share by the students in the course. Students missing required field trips identified in the catalog course description must pay their proportionate shares.

M-3-e. Field-Trip Completion Deadline. All field trips and other UI-approved student travel must be completed before 7:30 a.m. on the fifth day of classes before the start of final examinations.

M-3-f. Unofficial Student Travel. UI student accident insurance does not cover injuries sustained in the course of travel unless the travel has been officially authorized by the appropriate UI agent.

M-3-g. Vehicle Information. Information concerning privately owned vehicles (registration, insurance, driver's license, etc.) to be used for field trips or other official student travel must be filed in the Business and Accounting Services Office (Rm. 101, Ad. Office Bldg.). Administrators of departments and divisions are responsible for ensuring that the required information is filed before the initial use of each privately owned vehicle in a given academic year.

M-4. Accommodation of Religious Observances in the Administration of Examinations. When tests or examinations fall on days objectionable to a student because of religious beliefs, the student should contact the instructor as soon as possible. The instructor may require the student to submit a concise, written statement of the reasons for the request. If the request appears to be made in good faith, the instructor should make alternative arrangements for the administration of the examination or test. If the instructor believes the request not to be in good faith, or if the instructor and the student are unable to agree on arrangements, the student or the instructor should seek the assistance of the departmental administrator, dean, or provost, in that order.

M-5. Drop for Non-attendance. Students are responsible for notifying their instructors through the registrar when extenuating circumstances not covered as an officially approved absence as defined in M-1 prevent their attendance during the first week of the semester. Instructors may drop from classes students who have not attended class or laboratory meetings nor notified the instructor through the registrar by the end of the first week of classes. Valid reasons for missing classes do not relieve the student of making up the work missed.

N—Class Rating

Class ratings of undergraduates are determined as follows: sophomore-26 credits, junior-58 credits, and senior-90 credits.

O—Miscellaneous

O-1. Credit Requirements for Full-Time Students.

O-1-a. For purposes other than fees, UI students in all divisions except the College of Graduate Studies and the College of Law must carry 12 credits each semester or summer session to be classified as full time.

O-1-b. For fee and tuition purposes only, students carrying eight or more credits (or equivalent in audits and zero-credit registrations) and all teaching/research assistants on full appointment, regardless of the number of credits they register for, are classified as full-time students.

O-1-c. Students in the College of Graduate Studies are considered full time: **(1)** when registered for nine credits (or equivalent) of course and/or thesis work; or **(2)** when on regular appointments as teaching assistants or research assistants.

O-1-d. Veterans and war orphans attending UI on the G.I. Bill must carry certain minimum credit loads to be considered by the Veterans' Administration for benefits as indicated in the table accompanying this regulation. (Audits do not count; repeats and reviews may be included when the student's adviser certifies that the course is required in the student's curriculum or is needed to remove a deficiency or to provide essential background for the student's program; file a copy of the program with the veterans' clerk at the Office of Dean of Students.)

MINIMUM CREDIT LOADS FOR VETERANS' BENEFITS

Benefits	Academic Year Undergraduate	Academic Year Graduate	Summer Session Undergrad. & Grad.
Full	12 or more	9 or more	Must be arranged
Three-fourths	9-11	6-8	
Half	6-8	4-5	
Fees and tuition only	fewer than 6	fewer than 4	

O-1-e. Students in the College of Law are considered full time when registered for 10 credits (or equivalent) of course work.

O-1-f. The president, vice president, and senators of the Associated Students University of Idaho are considered full time when carrying at least the following credit loads: president, three credits; vice president and senators, six credits. The editor and associate editor of the *Argonaut* are considered full time when paying full-time student fees and carrying at least the following credit loads: editor, three credits; associate editor, six credits.

O-2. Academic Performance. Instructors and students are responsible for maintaining academic standards and integrity in their classes. Consequences for academic dishonesty may be imposed by the course instructor. Such consequences may include but cannot exceed a grade of "F" in the course. If the student deems the grade unfair, he or she may appeal through the appropriate departmental administrator and college dean, and finally to the Academic Hearing Board. Disciplinary penalties for academic dishonesty may include suspension or expulsion and must be handled by the Student Judicial System. Additional information on academic dishonesty may be found in the publication *Policies and Information of Interest to Students* and the *Faculty-Staff Handbook.*

O-3. Application for Degrees. Candidates for degrees must, at the beginning of the last semester or summer session in residence, pay the diploma fee and file an application with the dean of the division through which the degree is offered. If two degrees are to be received concurrently, separate applications must be filed with the dean(s) of the division(s) concerned. The application must be filed with the dean after the diploma fee has been paid at the Business and Accounting Services Office. (See "Fees and Expenses" in part 2.) The last day for filing applications for degrees is the beginning of the third week of the semester or the beginning of the second week of summer session.

O-4. Commencement. Formal commencement exercises are held at the close of the fall and spring semesters; however, diplomas are also issued at the close of the summer session to such candidates as have completed their graduation requirements at that time. All students who graduate in the summer, fall, or spring are entitled to participate in the commencement exercises. At the beginning of the semester in which graduation requirements are completed, students must indicate on their application for degree whether they intend to participate in the formal commencement exercises so that appropriate arrangements can be made. Reservations for caps, gowns, and hoods must be made by the date specified by the registrar. Diplomas are ready about twelve weeks after the end of the academic session in which graduation requirements are completed.

O-5. Limitations on Class Size.

O-5-a. Limitations on class size must have prior approval by the dean of the college in which the course is offered. If it becomes necessary to limit the size of a class on a continuing basis (more than two semesters), the limitations must be approved through faculty channels—University Curriculum Committee and university faculty—and be made part of the catalog description of the course.

O-5-b. Preference for enrollment in courses with limitations on class size is given to students enrolling in them for the first time. At the option of the department, students repeating courses for any reason may be placed on standby status. Students in that status are allowed to register for the course, if there is available space, by permission of the department offering the course. In no case may a student be held in standby status for any one course for more than two consecutive semesters.

O-5-c. Any student denied admission to a class may appeal in writing to the provost for a review of the circumstances involved.

O-6. Students' Right to Change Course Sections. Students have the right to change from one section of a course for which they are qualified to another section of the same course during the first two weeks of classes so long as the section into which they wish to transfer has not reached the maximum number of students that may be accommodated. (See appeal procedure in O-5.)

O-7. Availability of Instructors' Names. As a matter of principle, students and their academic advisers and deans have the right to know the names of the instructors who will teach course sections to be offered during the immediately ensuing semester or summer session. Departments are required to submit the names of instructors for all course sections for publication in the Time Schedule. Where it is impossible to determine the teaching assignments of individual members of the instructional staff before the deadline for the Time Schedule, departments are responsible for making information concerning adjustments in teaching assignments generally available to students, advisers, and deans at such time as they occur.

O-8. Confidentiality of Academic and Counseling Records. See the student records policy in the booklet entitled "Policies and Information of Interest to Students," available from the Office of the Dean of Students (UCC 241), the Office of the Vice President for Student Affairs (Student Union Building), and other locations around the campus.

O-9. Deviations from Established Class Schedules.

O-9-a. The provost periodically reminds deans and departmental administrators of their responsibility to ensure that classes meet in conformity with the course descriptions and Time Schedule. (It is the responsibility of the University Curriculum Committee to see that the time requirements stated in new or revised course descriptions satisfy general regulation D-1, "Credit Defined"; it is the responsibility of the registrar to see that listings in the Time Schedule conform to the respective course descriptions.)

O-9-b. The cancellation of a particular class session or sessions on an occasional basis, normally due to unusual circumstances affecting the instructor of or the students in the class, is a matter for the instructor's discretion. Nonetheless, instructors should keep such cancellations to a minimum, be satisfied that the grounds for cancellation are defensible, give as much advance notice of the cancellation as is possible, and, if time permits, obtain the concurrence of the departmental administrator in advance. Frequent failure of an instructor to meet classes, except for reasons clearly recognizable as adequate, may be grounds for disciplinary action.

O-9-c. The scheduling of required class meetings at times other than those specified in the Time Schedule or authorized in the course descriptions (e.g., field trips) requires approval by the provost. In addition to securing the provost's approval, the instructor must give the students at least two weeks' notice, provide alternative means of completing class requirements for students who have irreconcilable conflicts with the irregular meetings, and, normally, cancel regularly scheduled class meetings equivalent to the irregular meetings. (If it is proposed that such irregular meetings be made a continuing practice, they are to be incorporated in the course description and the revised description submitted to the University Curriculum Committee for routine faculty approval.)

O-9-d. Authorized class meetings at times other than those shown in the Time Schedule is one of the topics that instructors are to discuss at the first or second class session.

College of Graduate Studies

Charles R. Hatch, Interim Vice President for Research and Graduate Studies (104 Morrill Hall; 208/885-6243); Roger P. Wallins, Associate Dean.

The College of Graduate Studies was formally organized in 1925 (then designated as the Graduate School), but the university has awarded advanced degrees since 1897. The Graduate College encompasses all divisions of the university, but does not supervise programs in the College of Law. This coverage of all regular disciplines and professional fields provides a wide variety of academic programs. Enrollments are large enough to make possible the vital interchange of ideas among students and between students and faculty that is necessary for graduate programs, and yet enrollments are sufficiently small to permit close faculty-student relationships. Interdepartmental cooperation is an important factor on the Idaho campus. The university is the chief research center for the state and as such operates active graduate programs in most areas providing a broad research base upon which graduate programs have been built.

Graduate Council

The Graduate Council is the representative body of and is empowered to act for the Graduate Faculty. It is responsible to and reports to the Graduate Faculty, which retains the authority to review actions of the council. Its function is to coordinate and promote graduate instruction and research, to formulate policies and long-range plans for the graduate program, and to review and act on student appeals and petitions that involve exceptions to accepted regulations and procedures of the Graduate College.

The Graduate Council is constituted of one member elected by and from the constituent graduate faculty of each of the college-level divisions that offer programs leading to graduate degrees (except the J.D. degree), four members of the Graduate Faculty appointed by the president of the university, two graduate students, the vice president for research and graduate studies, who serves as chair, and the assistant or associate graduate dean, who serves as vice chair.

Undergraduate Enrollment in the College of Graduate Studies (Partial Enrollment)

A senior with 116 or more credits and who has a cumulative grade-point average of 2.80 or higher may apply for partial enrollment in the Graduate College. Seniors desiring partial enrollment must submit to and have approved by the Graduate College a "Partial Enrollment" form that contains a registration plan designating undergraduate and graduate courses, thereby allowing a separate graduate transcript to be established. Capable students who are in their last year can thus begin limited graduate work at an earlier date than would otherwise be possible. Partial enrollment is for one semester at a time only and does not admit or guarantee subsequent admission of such students to the Graduate College. Students who have been granted partial enrollment and who later wish to be admitted to the Graduate College for work on a degree must apply for admission to the Graduate College following usual procedures. The deadline to apply for partial enrollment is the tenth day of class for that semester or session.

Senior in 500-Level Course

A senior may enroll in 500-level courses provided that the student has a cumulative grade-point average of 2.80 or higher. Credits earned under this regulation are recorded on the student's undergraduate record only and may not be used subsequently toward an advanced degree.

General Graduate Regulations

The regulations described in this section are the minimum standards established by the faculty of the College of Graduate Studies. Departments may establish additional regulations, including additional residence requirements, above the minimums set by the College of Graduate Studies. Departmental requirements are described in part 4.

Each student working for a degree through the Graduate College will be advised by a major professor and a supervisory committee (committee is optional for nonthesis degrees). Where study objectives and/or research are interdisciplinary in nature, cochairs may be appointed from the departments involved, and the major professor and a research professor may divide responsibilities. Unclassified students may request the vice president for research and graduate studies to appoint an adviser to provide guidance.

Student Responsibilities. The student is responsible for complying with all rules, procedures, and time limits, as established by the graduate faculty.

Petitions. Students and major professors are advised that the right of petition exists to waive or modify some university regulations. Academic petitions request waiver or modification of regulations in Part 3. Graduate petitions request waiver or modification of regulations in this section. However, favorable action can be expected only when circumstances and the presentation clearly justify an exception. Precedents are not set by previous actions and may not form the basis of a petition; rather the situation concerning the student involved is given consideration on an individual basis. A $5 fee is charged for each petition submitted to the Academic Petitions Committee or Graduate Council.

Registration and Enrollment Requirements. Graduate students engaged in **ANY** activity requiring faculty or staff time and consultation, or the use of any UI facilities, must register for the number of credits appropriate to the degree of activity involved during the semester of activity. Such activity includes, but is not limited to: writing, defending, or submitting a thesis or dissertation; working on a nonthesis requirement; taking a preliminary examination.

Change of Major. A student is admitted for work in a specified major or program and may not change without approval of the new department. Such procedure is formalized by a change of curriculum form signed by the chair of the program the student is leaving and the chair of the program in which the student wishes to enroll. The form must be approved by the vice president for research and graduate studies before it is forwarded to the Registrar's Office.

Academic Loads.

Credit Requirements for Full-Time Students. A student is considered to be engaged in full-time study when registered for nine credits of course and/or thesis work. (A student pays full-time fees when taking eight credits, but is nonetheless considered a part-time student.) See also specific credit guidelines under "Financial Aid."

Regular Semester. The credit limit for a graduate student who is not a full-time graduate assistant is 16 credits a semester (excluding courses taken for audit). This maximum load includes credits for which the student is concurrently registered through correspondence study or at other institutions.

Summer Sessions. See regulation D-2-b in Part 3.

Correspondence Courses. Credits earned in University of Idaho correspondence courses are applied to a graduate program only with the prior written approval of the vice president for research and graduate studies. Correspondence courses do not satisfy the residence requirements for final semester registration, and a limited amount of such work can be applied toward a degree. Subject to approval by the appropriate department(s) and/or college, correspondence credits from other institutions that are accepted for graduate credit by that institution may be accepted toward degree requirements. Grades earned in correspondence courses are not calculated into the student's GPA.

Probation, Disqualification, and Reinstatement. A graduate student is placed on probation after any semester or summer session in which a grade-point average of less than 3.00 is earned, regardless of the student's cumulative GPA. The student will be disqualified if a GPA of less than 3.00 is earned during the second, consecutive semester or summer session in which regular grades of A, B, C, D, or F are received. If a graduate student who is on probation receives an Incomplete during a semester, the revert grade listed for the Incomplete will be used to calculate the GPA for that semester. If the calculated semester GPA is 3.00 or higher, the student will be in good academic standing. If the calculated semester GPA is less than a 3.00 GPA, the

student will not be allowed to register. Once the work is completed and a final grade is given, the GPA will be automatically recalculated. In all other cases, he or she may be reinstated as a graduate student under the following conditions: The student may not take classes for at least one regular semester (fall or spring), must get the positive recommendation of his or her departmental administrator, must get Graduate College permission, and must receive at least a 3.00 grade-point average the first semester back in the Graduate College. Reinstatement is granted for a specific semester only. If a student does not register for that semester, he or she must reapply for reinstatement.

Grade Requirements. A candidate for an advanced degree must have a cumulative GPA, based on his or her graduate record, of at least 3.00 (A = 4.00). The relevant GPA is calculated as stated in regulation E (part 3) except that it is based only on grades received: in all courses taken at UI while the student was enrolled in the particular program (major) leading to the degree sought whether or not those courses are on the student's study plan; in courses that were taken at UI before the student enrolled in his or her current program and have been included in that program by the student's committee; and, in the case of candidates for the master's degree, in UI courses 500 and 599 for an aggregate of not more than 10 credits or the department's allowance of research credits, whichever is the lesser (grades received in these courses for credits in excess of this limitation are treated as if the courses were graded P or F). Though courses in which grades of D are received may not be counted toward the satisfaction of degree requirements, those grades are included in the GPA.

Deficiencies. Courses that are needed to provide background for the student's program may be taken for zero credit. Letter grades attained in courses taken for zero credit will appear on the student's transcript. When deficiency courses are taken for regular credit the resulting grade will be included in the computation of the grade-point average.

Catalog Issue. The pertinent requirements for graduate degrees are those contained in the catalog issue that was in effect at the time of or subsequent to the candidate's entry into a specific graduate program as a degree-seeking student. In any case, the catalog issue designated must have been in effect within seven years of the commencement at which the candidate is to receive the degree.

General Requirements for Master's Degrees

Credits. All master's degree programs require a minimum of 30 credits. Some master's degree programs may require more. Additional work may be stipulated in individual cases to meet particular objectives or need for additional background. Credit in course 500 (Research and Thesis) cannot be counted toward the minimum of 30 credits for a nonthesis master's degree. Although no limit is imposed on the number of credits that may be earned in course 500 (Master's Research and Thesis) for degrees with thesis, only a maximum of 10 credits in course 500 can be used to fulfill master's degree requirements. Up to five credits of course number 599 are allowed to count towards a nonthesis master's degree; if a thesis program exists for a department, no more credits of 599 are allowed toward the nonthesis master's degree than half the number of credits allowed for course number 500 toward the department's master's degree.

Transfer, Correspondence Study, Nondegree Credit, and Overaged Credit Limitation. The combined total of transfer credits, correspondence credits, nondegree credits, and approved credits more than eight years old at the time the degree is awarded shall not exceed 12 credits for master's programs requiring 36 or fewer credits, and shall not exceed one-third of the total credits in programs requiring more than 36 credits. The student's department may set a lower limitation. Credits can be transferred to UI, with the consent of the student's committee and the vice president for research and graduate studies, only if the institution from which the course credits are being transferred has a graduate program in the course's discipline or, should there be no graduate program in the course's discipline, if an exception has been granted by the vice president for research and graduate studies. Transfer credits are subject to all other Graduate College rules and regulations. Courses listed on an undergraduate record or on a professional degree transcript are not available to be used toward a graduate degree.

Procedures for Overaged Credits. To be acceptable toward a master's degree, overaged credits beyond the limitation above must be approved by taking the final examination in the equivalent UI course (as determined by the departmental administrator of the area in which the course is offered) and receiving an A or B grade from the instructor of the course. The results of the examination are submitted to the Graduate College in writing by the departmental administrator of the department in which the course is offered.

Foreign Language. There is no Graduate College foreign language requirement for a master's degree; however, some departments require a language examination or special course work.

Subsequent Graduate Degrees. An applicant who has a master's degree or is working on a master's degree may obtain a second master's degree, subject to the approval of the vice president for research and graduate studies. Up to six credits of course work used to satisfy the requirements for the first degree may be applied to the second; all other catalog requirements and credit requirements in UI courses must be fulfilled. A student who is enrolled in a doctoral program or who has a doctorate may obtain a master's degree in a different field and use a number of common credits subject to approval by the Graduate Council. A student who has a doctorate may not subsequently obtain a master's degree in the same field.

Specific Requirements for Master's Degrees

Master of Architecture. The M.Arch. degree requires a design project. Refer to the Department of Architecture section in part 5 of this catalog for a definition of specific admission and thesis requirements. Of the minimum 30 credits required for the degree, 18 must be at the 500s level; the remainder may include 400s level courses in the major, and 300s or 400s level courses in supporting areas. All credits toward the degree must be earned in residence at UI or during internship and study abroad. A final design project must be accepted.

Master of Arts. In some fields, all candidates for the M.A. degree are required to present a thesis; in others the thesis is optional or not required. Consult the departmental section for specific descriptions. Of the minimum 30 credits required for the degree, at least 18 credits must be at the 500s level; the remainder may include 400s level courses in the major and 300s or 400s level courses in supporting areas. For the thesis student, a thesis is required. For the nonthesis student, a nonthesis requirement must be met.

Master of Arts in Teaching. The M.A.T. is normally viewed as a terminal nonthesis degree. This degree is primarily for certified teachers who wish to strengthen their subject-matter preparation. Enrollment in this program of study requires the consent of the chair of the subject-matter department. The major professor is from the subject-matter department; the co-adviser is from the College of Education. The general requirements of the Graduate College apply except that, of the minimum 30 credits required, only six must be in courses at the 500s level, at least six (normally those at the 500s level) must be in professional courses in education, and at least 20 must be in courses in the subject field. These courses may be at the 300s or 400s level, including 300s courses in the major field if they are a part of the logical sequence of study. A written and/or oral nonthesis requirement in the subject field must be met.

Master of Education. The M.Ed., a nonthesis degree, requires a nonthesis requirement. Of the minimum 30 credits required, at least 18 must be in courses at the 500s level; the remainder may include 400s level courses in the major and 300s or 400s level courses in supporting areas.

Master of Engineering. The M.Engr. is a nonthesis degree. A minimum of 30 credits is required; at least 18 must be in courses at the 500s level and the remainder may include 400s level courses in the major and 300s or 400s level courses in supporting areas. A written and/or oral nonthesis requirement must be met. Majors are offered in agricultural, chemical, civil, computer, electrical, mechanical, and (at the UI/Idaho Falls Center for Higher Education only) nuclear engineering. The prospective student should consult the specific department for special entrance requirements.

Master of Music. The M.Mus. degree, depending on the concentration selected, requires a thesis, public graduate recitals, or a final project. No credit is granted for the final project in a nonthesis degree plan and the project is subject to approval of the supervisory committee. Both written and oral nonthesis requirements must be met in all degree options. Of the minimum 30 credits required for the degree, at least 18 must be in courses in the School of Music at the 500s level; the remainder may include 400s level courses in the School of Music and 300s or 400s level courses in other areas.

Master of Natural Resources. The M.N.R. program is intended to provide broad-based, advanced training in natural resource management and administration. The M.N.R. degree requires 30 semester credits beyond the bachelor's degree: 20 credits of core courses and 10 credits of restricted electives. Only course work at the 400 or 500 level counts toward the degree. At least 18 of the 30 credits must be at the 500 level. No more than 12 of the 30 credits can be earned at another institution. A comprehensive final examination is required.

Master of Natural Science. The M.Nat.Sc. is a nonthesis degree primarily for students who are currently engaged in, or planning to enter, secondary-school or junior-college teaching. Courses in the 300s, 400s, and 500s levels may be included. Of the minimum 30 credits required for the degree, 18 must be earned in one major field, or nine credits in each of two fields. The remaining credits are to be chosen so that the entire program is consistent and serviceable to the student. A major paper must be written in a major area of the program, and a written and/or oral nonthesis requirement is also part of the program. The student's committee consists of at least three members: the major professor and a representative from the major area or areas, and a representative from outside the major area(s).

Master of Public Administration. The M.P.A. program includes thesis and nonthesis options. Of the minimum 30 credits required for the degree, at least 18 must be in courses selected from prescribed core areas and 12 in designated optional areas of emphasis as described in the Department of Political Science section in part 5 of this catalog; at least 18 of the 30 credits must be in courses at the 500s level. A public service internship is required of students with no appropriate work experience. For the thesis student, a thesis is required. For the nonthesis student, a nonthesis requirement must be met.

Master of Science. In some fields, all candidates for the M.S. degree are required to present a thesis; in others the thesis is optional or not required. Consult the departmental section for specific descriptions. Of the minimum 30 credits required for the degree, at least 18 credits must be at the 500s level; the remainder may include 400s level courses in the major, and 300s or 400s level courses in supporting areas. For the thesis student, a thesis is required. For the nonthesis student, a nonthesis requirement must be met.

Procedures for Master's Degrees

Appointment of Major Professor and Committee. The major professor, a member of the Graduate Faculty, is appointed as early as possible during the student's first semester in residence. The committee is recommended by the major professor and approved by the vice president for research and graduate studies. At least one-half of the members of the committee must be members of the Graduate Faculty. Except for an interdisciplinary program, which requires at least four members, the committee for a thesis degree will consist at least of the major professor as chair, a second faculty member from the major department, and a faculty member representing a discipline outside the major department's discipline(s). A department faculty member who has an adjunct appointment to another department cannot be considered an outside committee member for a student in the faculty member's primary department. The committee advises on the thesis research and conducts examinations as required. Except for students enrolled in an interdisciplinary program, a committee for a nonthesis degree is optional or is often a departmental or college committee. Any changes in the committee membership must receive the approval of the Graduate College on a Change in Committee form.

Qualifying Examination. If such an examination is required, it is conducted according to departmental procedures and is a prerequisite to the preparation of a study plan. A report of this examination is not turned in to the Graduate College.

Preparation of Study Plan. Early in the student's academic career, the student prepares in conference with the major professor (and committee, if applicable) a master's degree study plan outlining all course work to be completed to fulfill the requirements for the degree. Normally the study plan will include some work to be taken outside the major department. The study plan is prepared on forms provided by the Graduate College and is approved by the student's committee, departmental administrator, and vice president for research and graduate studies. Any subsequent changes in the study plan must be submitted for approval to the Graduate College on a standard form for study plan changes.

Application for Advanced Degree. The Application for Advanced Degree, obtained from the Graduate College, is completed at the beginning of the semester in which the student intends to graduate. The date for filing this application is stated in the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration. A student who files an application and does not graduate, but does not request that the application be withdrawn, must pay an additional fee to reinstate the application.

Final Semester Registration. A graduate student defending and/or submitting a thesis must be registered for thesis credit. A graduate student in a nonthesis program must be registered during the semester in which the nonthesis requirements are completed. Note that correspondence courses do not satisfy the residence requirements for final semester registration. See also "Registration and Enrollment Requirements" under general regulations. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

Nonthesis Requirement (Nonthesis Degree). This examination, presentation, or project is completed after the completion of most or all of the degree requirements. The department establishes format and time frame, and reports the results of the nonthesis requirement to the Graduate College. The examination, presentation, or project, if failed, may with departmental approval be repeated once. The interval before the second attempt may not be less than three months or longer than one year. Up to one credit received for completing the examination, presentation, or project may be used toward the degree. If a student fails the examination, presentation, or project twice, or the department does not allow the student to repeat the examination, presentation, or project after the first failure, or the student does not retake the examination or redo the presentation or project within a year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program.

Final Defense (Thesis Degree). Before the defense, authorization forms are obtained from the Graduate College or from the "Graduate Handbook for Theses and Dissertations." The defense is usually oral, but part may be written. The candidate is required to defend his or her work and show a satisfactory knowledge of the major and supporting fields. A recommendation of a majority of the committee is necessary for a candidate to pass this defense. The defense, if failed, may with departmental approval be repeated once. The interval before the second attempt may not be less than three months or longer than one year. Following a successful defense of his or her thesis, the candidate must submit the final copies within six months; otherwise, the candidate must defend the thesis again and may be required to revise it or write an entirely new one. If a student fails the final defense twice, or the department does not allow the student to repeat the defense after the first failure, or the student does not repeat the defense within a year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program.

Thesis. Two reproduced copies of approved quality and an additional copy of the title page and abstract must be deposited in the Graduate College by the date specified in the *Time Schedule*.

A "Graduate Handbook for Theses and Dissertations," which describes the requirements and makes suggestions for the preparation of theses, should be obtained from the Graduate College. Students must conform to current rules and regulations of the Graduate College when preparing theses.

Master of Fine Arts

The University of Idaho awards the degree of Master of Fine Arts in recognition of high achievement in art, creative writing, or theatre arts. The M.F.A. is the professionally recognized terminal degree in the fine arts.

The major professor and department offering a particular M.F.A. program specify the philosophy of the degree program, the objectives of the courses and seminars, the creative areas of concentration available, and requirements peculiar to the department. Admission to an M.F.A. program is granted only to those applicants who have demonstrated abilities and achievements that are judged by the departmental faculty to exhibit the potential for completing the degree.

Requirements for M.F.A. Degree

Credit Requirements. See the specific program requirements in Part 5.

Transfer, Correspondence Study, Nondegree Credit, and Overaged Credit Limitation. The use of transfer, correspondence study, nondegree, and overaged credits is subject to the limitations of each program but cannot exceed Graduate College limitations. Credits can be transferred to UI, with the consent of the student's committee and the vice president for research and graduate studies, only if the institution from which the course credits are being transferred has a graduate program in the course's discipline. Transfer credits are subject to all other Graduate College rules and regulations. Courses listed on an undergraduate record or on a professional degree transcript are not available to be used toward a graduate degree.

Time Limit. At the time the master's degree is conferred, no courses used toward the degree can be older than eight years.

Subsequent Graduate Degrees. An applicant who has a master's degree or is working on a master's degree may obtain a second master's degree, subject to the approval of the vice president for research and graduate studies. Up to six credits of course work used to satisfy the requirements for the first degree may be applied to the second; all other catalog requirements and credit requirements in UI courses must be fulfilled. A student who is enrolled in a doctoral program or who has a doctorate may obtain a master's degree in a different field and use a number of common credits subject to approval by the Graduate Council. A student who has a doctorate may not subsequently obtain a master's degree in the same field.

Awarding M.F.A. Degrees to Members of the Faculty. A University of Idaho faculty member with rank of senior instructor or above may not be awarded an M.F.A. degree through the department or corresponding unit in which he or she is employed, unless that faculty member had been admitted to that degree program before attaining such academic rank.

Procedures for M.F.A. Degree

Appointment of Major Professor. Generally the student will be advised initially by the departmental administrator or departmental graduate coordinator, as appointment of the major professor should be made with deliberation and regard to all aspects of departmental and student interests. As soon as feasible, with respect to the availability of faculty members in the student's area of concentration, but within three semesters of registration in an M.F.A. program, the student and departmental administrator or graduate coordinator nominate the major professor, who must be a member of the Graduate Faculty.

Graduate Reviews. Following departmental procedures, graduate reviews may be conducted annually by department graduate faculty members. The initial graduate review may normally be conducted within the first two semesters of registration in an M.F.A. program, and serves to assess the background of the student in both major and supporting fields and to provide in part the basis for preparation of the student's study plan.

Selection of Graduate Committee. The graduate committee consists at least of the major professor as chair, a second faculty member from the major field, and a member from a discipline outside the major department's discipline(s). A department faculty member who has an adjunct appointment to another department cannot be considered an outside committee member for a student in the faculty member's primary department. At least one-half of the members of the committee must be members of the Graduate Faculty. The committee is approved by the vice president for research and graduate studies in accordance with nomination procedures of the department concerned. The committee assumes the responsibility for directing the student's program under the leadership of the committee chair.

Preparation of Study Plan. Within two semesters (or two summer sessions for those attending in the summer only) of registration in an M.F.A. program, the student and major professor or graduate coordinator prepare a study plan, on forms provided, for approval by the student's committee, the departmental administrator, and the vice president for research and graduate studies. Changes later deemed desirable may be made on a special change of study plan form and approved by the committee. Awarding the degree is based on completion of all items required by the study plan. Excessive course requirements should be avoided; emphasis and attention should be given to the thesis presentation.

Application for Advanced Degree. The Application for Advanced Degree, obtained from the Graduate College, is completed at the beginning of the semester in which the student intends to graduate. The date for filing this application is stated in the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration. A student who files an application and does not graduate, but does not request that the application be withdrawn, must pay an additional fee to reinstate the application.

Final Semester Registration. A graduate student defending and/or submitting a thesis must be registered for thesis credit. A graduate student in a nonthesis program must be registered during the semester in which the nonthesis requirements are completed. Note that correspondence courses do not satisfy the residence requirements for final-semester registration. See also "Registration and Enrollment Requirements" under general regulations. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

Final Defense (Thesis) or Nonthesis Requirement (Examination, Project, or Presentation). Before the thesis defense or the nonthesis examination, project, or presentation, the appropriate forms are obtained from the Graduate College or the "Graduate Handbook for Theses and Dissertations." The thesis defense is usually oral but may be written. The actual time for the defense of the thesis is set by the department, and is scheduled on completion of the thesis work; the candidate is required to defend his or her work and show knowledge of the major and supporting fields. A recommendation of a majority of the committee is necessary for a candidate to pass the defense or nonthesis requirement. The defense or nonthesis requirement, if failed, may with departmental approval be repeated once. The interval before the second attempt may not be less than three months or longer than one year. If the student fails the final defense or nonthesis requirement twice, or the department does not allow the student to repeat the defense or nonthesis requirement after the first failure, or the student does not retake the defense or nonthesis requirement within a year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program. Following a successful defense of his or her thesis, the candidate must submit the final copies within six months; otherwise, the candidate must defend the thesis again and may be required to revise it or write an entirely new one.

Thesis. Two reproduced copies of approved quality and an additional copy of the title page and abstract (not to exceed 300 words) must be deposited in the Graduate College by the date specified in the *Time Schedule*. Supporting materials, slides, video/audio tapes, etc., of final thesis work may be submitted after the thesis show in compliance with Graduate College procedures.

A "Graduate Handbook for Theses and Dissertations," which describes requirements for the preparation of theses, should be obtained from the Graduate College.

Education Specialist Degrees

The University of Idaho awards the degree of Education Specialist for students who want an organized program of graduate studies beyond the master's degree, but who may not wish to pursue a doctoral program. Programs are available leading to the degrees of Education Specialist in Adult Education, Education Specialist in Counseling and Human Services, Education Specialist in Education, Education Specialist in Educational Administration, Education Specialist in School Psychology, Education Specialist in Special Education, and Education Specialist in Vocational Education. General requirements for the education specialist degree are described in this section.

Requirements for Education Specialist Degree

Credit Requirements. An acceptable program of at least 60 upper-division and graduate-level semester credits beyond the bachelor's degree is required. Additional credits may be required for those who have master's degrees in other areas of emphasis or who have deficiencies in professional courses. Each student, following advising, will submit for approval to the appropriate department or division a study plan for meeting degree requirements. The study plan then is submitted to the vice president for research and graduate studies for approval.

Transfer, Correspondence Study, and Nondegree Credit Limitation. No more than 12 of the last 30 credits may be taken as transfer courses, correspondence courses (with prior written approval of the vice president for research and graduate studies), or nondegree courses. Transfer credits must be from institutions offering graduate programs in the discipline(s) of the course(s) being transferred. Credits listed on an undergraduate record or on a professional degree transcript are not available to be used toward a graduate degree.

Time Limit. The last 30 credits must have been taken in the eight years preceding the semester in which the degree is awarded.

Nonthesis Requirement. The candidate must pass a nonthesis requirement after completion of most of the degree requirements.

Procedures for Education Specialist Degree

Appointment of Major Professor. The major professor, a member of the Graduate Faculty, is appointed as early as possible during the student's first semester in residence.

Preparation of Study Plan. Early in the student's academic career, the student prepares, in conference with the major professor (and committee if applicable), a degree program outlining all work to be completed to fulfill the requirements for the degree. The study plan is prepared on forms provided by the Graduate College and becomes effective on approval by the student's major professor, departmental administrator, and vice president for research and graduate studies. Any subsequent changes in the study plan must be submitted on a standard form for committee and Graduate College approval.

Application for Advanced Degree. The Application for Advanced Degree, obtained from the Graduate College, is completed at the beginning of the semester in which the student intends to graduate. The date for filing this application is stated in the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration.

Final Semester Registration. A graduate student must be registered during the semester in which the degree requirements are completed. (See also "Registration and Enrollment Requirements" under general regulations.) Enrollment in correspondence study courses does not fulfill this regulation. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

Nonthesis Requirement. This written and/or oral examination, project, or presentation is taken after the completion of most or all of the degree requirements. The department establishes time, date, and place, and reports the results of the nonthesis requirement to the Graduate College. Up to one academic credit received for completing the nonthesis requirement may be used toward the degree.

Doctoral Degrees

The University of Idaho awards the degree of Doctor of Philosophy in recognition of high achievement in scholarly and research activity. The degree of Doctor of Education is granted for high scholarly attainment and in recognition of the completion of academic preparation for professional practice.

The major professor and department offering a particular doctoral program indicate the general philosophy of the degree program, the objectives of courses and seminars, the research specialties available, and requirements peculiar to the department. Admission to the doctoral program is granted only to those who have a recognized potential for completing the degree. In order to effect an integration of course and research work, students are advised to begin research shortly after entering the program and not wait until much of the course work has been completed.

Requirements for Doctoral Degrees

Credit Requirements. A minimum of 78 credits beyond the bachelor's degree is required; of these, at least 52 credits must be in courses numbered 500 and above, and at least 33 of the 78 credits must be in courses other than 600 (Doctoral Research and Dissertation). Courses numbered below 300 may not be used to fulfill the requirements for a doctoral degree; courses numbered 300-399 may be used only in supporting areas. Individual departments may require additional course work. **Applicants having a doctoral degree may obtain a second doctoral degree subject to the approval of the Graduate Council.** Residence requirements must be fulfilled for the second degree.

Transfer, Correspondence Study, and Nondegree Credit Limitation. A doctoral student must complete at least 39 of the 78 required credits in UI courses while matriculated in the College of Graduate Studies. Credits can be transferred to UI, with the consent of the student's committee and the vice president for research and graduate studies, only if the institution from which the course credits are being transferred has a graduate program in the course's discipline. Transfer credits are subject to all other Graduate College rules and regulations. Correspondence study courses may be applied to the degree only with the prior written approval of the vice president for research and graduate studies. Courses listed on an undergraduate record or on a professional degree transcript are not available to be used toward a graduate degree.

Time Limits. Of the credits submitted to satisfy the requirements for a doctoral degree, a maximum of 30 may be more than eight years old when the degree is conferred, provided the student's committee and department determine that the student has kept current in the subjects concerned. Graduation must occur no later than five years after the date on which the candidate passed his or her preliminary or general examination. These time limitations can be extended only on recommendation of the committee and approval by the Graduate Council.

Awarding Doctoral Degrees to Members of the Faculty. A University of Idaho faculty member with rank of senior instructor or above may not be awarded a doctoral degree earned through the department or corresponding unit in which he or she is employed, unless the faculty

member had been advanced to candidacy for the degree before attaining such academic rank.

Foreign Language Requirement for the Ph.D. Degree. Whether there is a foreign language requirement and, if so, the number of languages required, the method of examination, and the level of competency, are departmental options. Refer to departmental descriptions in part 5 of this catalog.

Particular Requirements for the Ed.D. Degree. A period of professional practice is required for the Doctor of Education degree; the period involved is determined by the student's supervisory committee. The Ed.D. degree is awarded only through divisions in the College of Education; therefore, the student should consult the appropriate divisional office for additional requirements.

Procedures for Doctoral Degrees

Appointment of Major Professor and Committee. A major professor (a member of the Graduate Faculty) is appointed as early as possible during the first two semesters of study. A supervisory committee consists *at least* of four people: the major professor as chair, a second faculty member from the major department, one faculty member from a minor or supporting area, and a faculty member from a discipline outside the major department's discipline(s). A departmental faculty member who has an adjunct appointment to another department cannot be considered an outside committee member for a student in the faculty member's primary department. The committee is approved by the vice president for research and graduate studies in accordance with nomination procedures of the department concerned. At least one-half of the members of the committee must be members of the Graduate Faculty. The committee assumes responsibility for directing the student's program under the leadership of the committee chair, who is also the research adviser. For programs that are strongly interdisciplinary, a major professor and a research professor may divide responsibilities.

Qualifying Examination. Following departmental procedures, the qualifying examination, written and/or oral, serves to assess the background of the student in both the major and supporting fields and to provide partially the basis for preparation of the student's study program. A particular department may or may not require a master's degree as a prerequisite for the qualifying evaluation. As soon as departmental qualifications are met, a supervisory committee is appointed.

Preparation of Study Plan. Within two semesters (or two summer sessions for those attending summer sessions only) of registration in the doctoral program, the student and major professor prepare a study plan, on forms provided, for approval by the student's supervisory committee, the departmental administrator, and the vice president for research and graduate studies. Changes later deemed desirable may be made on a special change of study plan form and approved by the committee. Awarding the degree is based in part upon completion of all items required by the study plan. Excessive course requirements should be avoided; emphasis and attention should be given to the dissertation plan.

Preliminary Examination for Ph.D. Degree. The preliminary examination should be scheduled only after the student has completed the majority of the courses on his or her study plan. The student's committee certifies to the Graduate College the results of the preliminary examination. Graduation must occur no later than five years after the date on which the candidate passed his or her examination. If the preliminary examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months or more than one year following the first attempt. If a student fails the preliminary examination a second time, or the department does not allow the student to repeat the examination after the first failure, or the student does not retake the examination within one year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program.

General Examination for Ed.D. Degree. When the student approaches the end of his or her course work, has completed the professional experience requirement, and has outlined the dissertation subject in detail, the supervisory committee approves the holding of the general examination. This is both a written and an oral examination and is intended to assess progress toward degree objectives. The student's committee certifies to the Graduate College the results of the general examination. Graduation must occur no later than five years after the date on which the candidate passed his or her examination. If the general examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months or more than one year following the first attempt. If a student fails the general examination a second time, or the department does not allow the student to repeat the examination after the first failure, or the student does not retake the examination within one year, the student is automatically moved to unclassified status, and is no longer in the degree program.

Application for Advanced Degree. The Application for Advanced Degree, obtained from the Graduate College, is completed at the beginning of the semester in which the student intends to graduate. The deadline for filing this application is stated in the calendar in the *Time Schedule*.

Before filing the application, the candidate and the major professor must jointly ascertain that the candidate has met all degree requirements or will do so by completion of current registration. A student who files an application and does not graduate, but does not request that the application be withdrawn, must pay an additional fee to reinstate the application.

Final Semester Registration. A graduate student defending and/or submitting a dissertation must be registered for dissertation credit. See also "Registration and Enrollment Requirements" under general regulations. A student who was registered during a term and did not complete all requirements by the end of that term, but does so before the official opening date of the new term, is awarded the degree at the end of the following term without further registration.

Final Defense. The final defense for a doctoral degree normally is not taken earlier than five months after advancement to candidacy. However, the actual time for the final defense is set by the student's department. It is held upon completion of the dissertation and after authorization forms have been issued by the Graduate College, but not earlier than ten working days after approval by the Graduate College to schedule the defense. A recommendation of a majority of the committee is necessary for a candidate to pass this defense. The defense, if failed, may be repeated once. The interval before the second attempt may not be less than three months or longer than one year. If a student fails the final defense a second time, or the department does not allow the student to repeat the defense after the first failure, or the student does not retake the defense within one year, the student is automatically moved to unclassified enrollment status, and is no longer in the degree program. Following a successful defense of his or her dissertation, the candidate must submit the final copies within six months; otherwise, the candidate must defend the dissertation again and may be required to revise it or write an entirely new one.

Dissertation. Two reproduced copies of approved quality and two additional copies of the title page and abstract (not to exceed 350 words) must be deposited in the Graduate College by the date specified in the *Time Schedule*. Doctoral candidates pay a fee for the publication of the abstract in Dissertation Abstracts and for microfilming the dissertation by University Microfilms.

A "Graduate Handbook for Theses and Dissertations," which describes requirements and make suggestions for the preparation of dissertations, should be obtained from the Graduate College. Students must conform to current rules and regulations when preparing dissertations.

Planned Fifth-Year Program of Teacher Education

The planned Fifth-Year Program of Teacher Education, a non-degree program, provides an opportunity for strengthening of teaching competence and for specialized study. A person admitted to the fifth year of teacher education must have a baccalaureate degree from an accredited college and must have met minimum Idaho standard certification requirements. The fifth year of teacher education should be completed following a period of at least one year of initial teaching experience.

The program is to be planned in the light of the teacher's initial teaching experience and/or professional goal. Teachers plan programs in consultation with an adviser from the College of Education. Secondary teachers may also have a cognate adviser from the subject field. The fifth year shall include a minimum of 30 credits; a maximum of one-third of the credits may be chosen from 300s and 400s level courses and at least two-thirds of the credits must be in 500s level courses. Study shall be in both academic and professional fields with at least 18 credits devoted to the teaching major and closely related subject areas; 8 credits must be in professional education. For secondary majors, 8 of the 18 must be in the secondary teaching field(s).

No more than a combined total of 12 credits earned in another school or in nondegree status at the University of Idaho may be included in a fifth-year program. Credits can be transferred to UI only if the institution from which the course credits are being transferred has a graduate program in the course's discipline. Correspondence credit is not applicable.

All courses included on the study plan must be taken in the eight years preceding completion of the program.

The Idaho Professional Teaching Certificate may be issued upon completion of this program providing the candidate holds a valid Idaho Initial Teaching Certificate and has completed a minimum of two years of satisfactory teaching experience in Idaho as verified by the employing school district.

Assistantships and Research Fellowships

Assistantships are open to domestic and international students who hold a baccalaureate degree from any university or college of recognized standing and who are regularly enrolled students in the College of Graduate Studies.

Students in the provisional enrollment category or in the unclassified enrollment category are NOT eligible to receive assistantships.

An inquiry for a position or award should be addressed to the administrator of the department in which the applicant plans to enroll for graduate study. Appointments include a work requirement of up to 20 clock hours a week. Graduate assistants are considered students and do not pay social security if registered for 9 or more credits. Graduate assistants who conduct classroom and/or laboratory instruction under the supervision of a full-time member of the faculty are teaching assistants. Graduate assistants who provide research service, grade papers, and perform other non-teaching duties are research assistants. Those appointed to assistantships supported by the university are advised that the appointments are tenable only in the unit of the major field of study, except where prior written exceptions are made. Annual leave, sick leave, and health insurance benefits are not available for graduate assistants.

Full-time appointees (i.e., with a work requirement of up to 20 clock hours a week) may enroll for a maximum study load of 12 credits each semester (exclusive of audited courses; zero credit courses are calculated using the actual credits associated with the course), except that the administrator of the department in which the student holds the assistantship may approve an adjustment to total 24 credits during two successive academic-year semesters. Salaries for assistantships vary depending upon the department, length of graduate service, and whether they are for an academic year or for 12 months. Assistantships at the University of Idaho are competitive with those at like institutions and current salary levels will be provided by the college or department upon inquiry.

In addition, nonresident tuition will be waived for persons holding full appointments, and a pro rata portion of nonresident tuition will be waived for persons holding partial appointments. However, **each person who holds a full appointment as a graduate assistant is required to pay graduate tuition and the uniform student fee charged to registered full-time students, regardless of the number of credits for which the student is registered.** Persons accepting part-time graduate student appointments will be required to pay graduate tuition and student fees based on the number of credit hours for which the person is registered.

Contingent upon adequate funding, the Graduate College pays summer session fees for a limited number of credits for a graduate student who held a graduate assistant appointment during the spring semester and who will be continuing on an approved graduate degree program during the summer. The credits must be applicable toward the student's degree. If the spring appointment was less than full time, the fee payment will be prorated.

A graduate assistant cannot use a staff or staff spouse fee waiver.

Research fellowships are awarded by various colleges. Research conducted on fellowships may or may not be used for dissertation purposes. Credit enrollment and stipends vary according to the particular fellowship. Fees and tuition are charged, but in some cases may be remitted, depending on the type of fellowship and the availability of funds. Inquiries should be addressed to the administrator of the department in which the applicant plans to enroll.

College of Agriculture

A. Larry Branen, Dean (53 Iddings Wing, Ag. Sc. Bldg.; 208/885-6681); John E. Hammel, Associate Dean and Director of Academic and International Programs; LeRoy D. Luft, Associate Dean and Director of the Cooperative Extension System; Richard C. Heimsch, Associate Dean and Director of the Idaho Agricultural Experiment Station.

The College of Agriculture provides quality programs in agricultural, food, family and consumer sciences, and related areas to all of Idaho. In addition to academic programs, the college also advances knowledge in these areas by research conducted through the Idaho Agricultural Experiment Station and provides information transfer and application of new knowledge to the state and the nation through the Cooperative Extension System. The college also actively participates in international development and student and faculty exchange programs around the world. The College of Agriculture was established in 1901. The Margaret Ritchie School of Family and Consumer Sciences became part of the college in 1983.

Advantages

The College of Agriculture offers a quality education in a professional and friendly atmosphere. Each student has a faculty adviser who is readily available to assist in academic and career planning. There is also a peer advising program to help first-time students become acquainted with the college and the university. Undergraduate students often have the opportunity to experience their major by working on research projects and internships directed by faculty members. The college also offers leadership opportunities through 20 departmental and college student organizations.

Faculty

The faculty are the key to quality education. In the College of Agriculture, there is a low student/teacher ratio and most classes are taught by faculty members. They bring to their students a strong commitment to teaching and a richness of depth, experience, and research.

Units

The College of Agriculture offers 23 majors through 8 academic units. The units are Agricultural Economics and Rural Sociology; Agricultural and Extension Education; Animal and Veterinary Science; Biological and Agricultural Engineering; Family and Consumer Sciences; Food Science and Toxicology; Microbiology, Molecular Biology and Biochemistry; and Plant, Soil and Entomological Sciences.

Facilities of the College

The College of Agriculture is housed in five buildings on campus and in many other facilities around the state. Some of the unique facilities include a child development laboratory, student computer laboratories, an agricultural engineering laboratory, a food science and toxicology research center, and research farms of more than 2,500 acres for

beef, dairy, sheep, plant science, and other programs. In addition to facilities at Moscow, there are offices in 42 counties and research and extension centers at 10 locations throughout Idaho.

Agricultural Experiment Station

The Idaho Agricultural Experiment Station was established in 1892 as the research function of the College of Agriculture and has the responsibility to conduct applied and basic investigations leading to problem solving and new knowledge for agricultural industries, rural communities, and family living. The Idaho Agricultural Experiment Station is coordinated with and provides research for teaching and extension to more effectively meet the needs of Idaho citizens.

The Idaho Agricultural Experiment Station is integrated into all departments of the college. Thus, most of the college's teaching faculty also have partial research appointments in the experiment station. Other faculty members have combined extension and research appointments and some are assigned to full-time research.

The Idaho agricultural research program is statewide. Research is conducted in a number of areas related to agriculture and on all major agricultural commodities. The center for the research program is located on the Moscow campus. In addition, there are 10 research and extension centers in strategic agricultural areas around the state where resident research and extension personnel are located.

The Idaho Agricultural Experiment Station shares the responsibility of developing and educating future scientists through undergraduate research and graduate assistantship programs. Currently, there are approximately 174 graduate students enrolled in the College of Agriculture, most of whom are on assistantships or stipends. These appointments are generally for two years at the Master of Science level and for three years in Ph.D. programs, during which time the students conduct research as a part of their graduate education.

Cooperative Extension System

The Cooperative Extension System was established by the Smith-Lever Act, signed May 8, 1914, to help extend research to the people of the United States in order to improve their farms, families, and communities. The Idaho legislature approved the Cooperative Extension concept in 1915. In 1917, additional state legislation brought the county boards of commissioners into the cooperative three-way federal, state, and county partnership.

The Cooperative Extension System is an integral part of the University of Idaho and the College of Agriculture and is administratively coordinated with the teaching and research functions of the college. The extension function is organized to extend the knowledge created through research to the people of the state of Idaho so that they can apply the findings to their particular situations, thereby solving their problems and improving their quality of life.

The headquarters of the Cooperative Extension System is at Moscow. District offices are located at Moscow, Boise, Twin Falls, and Idaho Falls. The state is the campus for the Cooperative Extension System.

Educators live and work in the areas to which they are assigned by mutual agreement of the university and the counties involved. Agricultural, family and consumer sciences, and youth educators are located in 42 of Idaho's 44 counties and are also involved in multi-county programming.

Backstopping the county faculty are state Extension specialists located at Idaho Falls, Parma, Caldwell, Aberdeen, Boise, Sandpoint, Soda Springs, Twin Falls, Moscow, and Kimberly. These specialists, in turn, keep up to date by cooperating with research scientists of the College of Agriculture and the U.S. Department of Agriculture.

Extension educational programs are conducted in four broad areas. These are: (1) agriculture and natural resources, (2) family and consumer sciences, (3) 4-H and youth development, and (4) rural development. Programs are both disciplinary and interdisciplinary and are designed to address the issues facing Idahoans. Major programming issues include water quality, youth at risk, waste management, food quality, nutrition, and agricultural sustainability.

The University of Idaho Cooperative Extension System helps people improve the social, economic, and environmental qualities of their lives through research-based education and leadership development focused on issues and needs. To accomplish this mission, the Cooperative Extension System works under the basic philosophy that programs planned with people will achieve greater success than programs planned for them. Extension takes the resources and research of the land-grant university out into the state so that Idaho's citizens can benefit from their university.

Degrees and Curricula Offered

Students in the College of Agriculture are encouraged to pursue a broad education. In each curriculum, minimum requirements are specified in agriculture or family and consumer sciences disciplines; in the life, physical, and social sciences; and in humanities to qualify the graduate to enter professional fields in agriculture and family and consumer sciences. Each curriculum also permits students to choose elective courses that will assist in personal and professional growth, development of communication skills, and a better understanding of the world in which we live.

Undergraduate. Baccalaureate degrees and major curricula offered by the College of Agriculture include Bachelor of Science degrees in Agricultural Education; Agricultural Economics (with majors in agricultural economics, agribusiness, and natural resources and rural development); Agricultural Science and Technology; Agricultural Systems Management; Animal Science (with majors in animal science, agribusiness, and dairy science); Entomology; Family and Consumer Sciences (with majors in child, family, and consumer studies; clothing, textiles, and design; and food and nutrition); Food Science; Horticulture; Microbiology; Molecular Biology and Biochemistry; Plant Science; Range Livestock Management; Science/Preveterinary; and Soil Science. See the departmental sections below for the programs of study leading to these degrees.

Graduate. Graduate study leading to the degree of Master of Science is offered in Agricultural Economics; Agricultural Education; Animal Science; Entomology; Family and Consumer Sciences; Food Science; Microbiology, Molecular Biology and Biochemistry; Plant Science; Soil Science; and Veterinary Science. Graduate study leading to the degree of Doctor of Philosophy is offered in Animal Physiology; Entomology; Microbiology, Molecular Biology and Biochemistry; Plant Science; and Soil Science. Both M.S. and Ph.D. programs in Agricultural Engineering are offered through the College of Engineering. Students must fulfill the requirements of the College of Graduate Studies and the units in which they study.

General Requirements for Graduation

University Requirements. See regulation J in part 3 for requirements that all students in the university must meet.

College Requirements. See part 5 for specific degree requirements within each department.

Major Curricula

The specific requirements for the undergraduate majors are listed in part 5. Each student is assigned an adviser who assists in the planning of his or her program; however, the student has the final responsibility for the completion of all university, college, and departmental requirements.

College of Art and Architecture

Paul G. Windley, Dean (AA 202—formerly Psychology Bldg. 83844-2461; 208/885-6272; http://www.aa.uidaho.edu).

The College of Art and Architecture was established in 1981 to bring together disciplines that orchestrate creation of the visual and physical human environment. The specific disciplines are art, architecture, landscape architecture, and interior architecture. This combination not only increases the resources available to students, but also brings

together a community of creative scholars with a common dedication to a high quality physical environment. The quality of these programs has earned the college an excellent and widespread reputation.

The objective of the College of Art and Architecture is to provide an educational experience for qualified students in the design-related disciplines. Upon completion of a program in one of these disciplines, graduates are equipped to become professionally competent individuals, capable of making useful and valuable contributions to their profession and society.

Aptitudes

Students likely to succeed in the design fields are those with a serious purpose and willingness to work hard. Equally important are: (1) ability to visualize in three dimensions; (2) ability to be creative and inquisitive; (3) ability to draw; (4) facility in the use of written and spoken English; and (5) possession of personal attributes that enable one to inspire associates and assistants to work together effectively.

Faculty

Faculty are the key to quality of the educational experience obtained through the college programs. Combining the energies of a well recognized, scholarly and creative faculty with the innovative talents of experienced architects, designers, and artists, the college develops the skills of future professionals by preserving the balance between the theoretical and practical aspects in each of the programs represented. Within the design professions focus is placed on the application of contemporary design techniques, with an understanding of their historical development.

Facilities

The College of Art and Architecture is housed in several buildings that are located in the very center of the university campus. These buildings are in close proximity to university classroom buildings, library, administrative offices, and recreational facilities. The Ridenbaugh Hall Gallery on campus and the Prichard Gallery in downtown Moscow are administered by the college and provide support to all college disciplines.

Departments

There are three departments in the college: Architecture, Art, and Landscape Architecture. An interior architecture program is offered through the Department of Architecture. Although these departments are separate entities, the teaching, research, and service missions of all the departments are integrated and coordinated at the college level. Information is available on the Internet at http://www.aa.uidaho.edu.

Fees

Students in the College of Art and Architecture pay a general fee and special fees for certain courses. See "Fees and Expenses" in part 2 of this catalog.

Students admitted to the professional programs in architecture, interior architecture, and landscape architecture pay a professional fee to support the special needs of these curricula.

Preparation and Admission

A statement of undergraduate and graduate admission requirements is included in part 2 of this catalog. Students who contemplate entering the College of Art and Architecture with advanced standing from a junior college or other institution should complete as many of the freshman and sophomore requirements listed in the curricula as possible. Certain courses are prerequisites to many advanced courses, and their omission will delay graduation. Certain grade-point averages and other conditions are required for entering into particular programs in the college. See the preface to each curriculum.

Degrees

Curricula leading to the following degrees are offered by the college: Bachelor of Science in Architecture (B.S.Arch.), Bachelor of Fine Arts in studio art or interior architecture (B.F.A.), Bachelor of Science in Art Education (B.S.Art Ed.), and Bachelor of Landscape Architecture (B.L.Arch.). In addition, a Bachelor of Arts degree (B.A.), with a major in art, is available through the College of Letters and Science. The majority of courses taken in the B.A. curriculum are housed within the College of Art and Architecture. Both the B.A. and B.F.A. degrees in art are available with eight areas of emphasis: drawing, painting, ceramics, sculpture, textile design, printmaking, photography, graphic design, and interface design. Graduate degrees are offered in the following areas: Master of Architecture (M.Arch.), Master of Fine Arts (M.F.A.), Master of Arts in Teaching (M.A.T.), Master of Arts (M.A.) with a major in architecture, and Master of Science (M.S.) with a major in landscape architecture.

Undergraduate Program

The undergraduate curricula are designed to provide both a general and a professional education. All curricula within the college include a first-year basic design core as well as foundation courses unique to each discipline. The college design core for undergraduate majors consists of Art 100, 111-112, and 121-122. The curricular options in each department offer many courses in common with other college departments. Flexibility and individuality in each student's program are provided by curriculum choice, options within curricula, and elective credits.

Graduate Programs

Graduate programs in the College of Art and Architecture offer the flexibility of independent studies and the guidance of an assigned faculty adviser/mentor. Students are responsible for formulating a detailed plan of study under faculty guidance. It is intended that graduate study serve as a transition from undergraduate apprenticeship to the student's emergence as a fully independent, creative artist or designer. Assistantships are available to help highly qualified students in their graduate program.

Scholarships and Awards

Scholarships and awards are available to students and prospective students. See "Financial Aid" in part 2. Also, contact specific program administrators.

General Requirements for Graduation

University Requirements. See regulation J in part 3 for the all-university requirements for graduation.

College Requirements. See part 5 for specific degree requirements within each department.

Upon registering for any course offered in this college, the student agrees that the department offering the course may retain work completed by the student. The department will make retained work available to the student for photographing.

College of Business and Economics

Byron J. Dangerfield, Dean (106 Continuing Education Bldg.; 208/885-6478); Dana Wekerle, Administrative Coordinator; Cheryl A. Wallace, Secretary of the College Faculty.

The college was established as a professional division of the university in 1925. Long known as the College of Business Administration, it became the College of Business and Economics (CBE) in 1969. Its principal objective is to provide a sound background in the basic business principles that will help graduates as they advance into positions of responsibility. As part of a state-supported land grant university, the CBE also aims to give its students an appreciation of

the social importance and responsibilities of businessmen and businesswomen, and both the values and the knowledge to discharge those responsibilities.

The college's mission is to deliver undergraduate and selected graduate and professional programs that prepare individuals to excel in a competitive marketplace.

Its goals and objectives are to: (1) be the residential institution of choice for undergraduate management education in the Northwest, (2) seek continuous improvement in the quality of programs and teaching, (3) nurture a faculty engaged in scholarship and publication, having a primary focus on relevant applied research, (4) attract, maintain, and nurture outstanding faculty, staff, and students, (5) improve our university, the state of Idaho, the Northwest region, and our professions through service, and (6) enhance program quality by involving interested constituencies including students, alumni, and businesses.

Through the Center for Business Development and Research, the college contributes to business development and the advancement of knowledge about our state's economy and its business activities. The center conducts management development programs for business and governmental organizations including the Positioning Executives for Change course and funded research projects that involve CBE and other UI faculty members and students in solving practical problems in Idaho and the Northwest.

International Business Programs. There are various programs by which a UI student can pursue international business. The following programs are available in connection with a B.S.Bus. degree: a major or minor in a foreign language; a major or minor in international studies; a major or minor in political science. For students seeking a B.S.Bus. degree, a minor is offered in international business (see Department of Business below). In addition, a student may have a dual major in business and foreign languages or major in foreign languages (B.A.) with a business option. A third option is the international studies program (B.A.), which may be selected by itself or as a dual major with business. Contact the Dean's Office in the College of Business and Economics for further information on international business programs.

Curricula and Degrees Offered

Undergraduate. The degree of Bachelor of Science in Business is offered with seven majors through three departments, as follows: Department of Accounting — accounting; Department of Business — finance, management and human resources, information systems, marketing, and production/operations management; Department of Economics — economics.

Specific requirements for each major are described in part five, "Departments of Instruction," under the appropriate department. The program of study includes three principal components: the general university requirements, the business and economics core, and the requirements for the selected CBE major field. Detailed statements of college requirements are under "General Requirements for Graduation."

Graduate. The CBE, through the College of Graduate Studies, offers the degrees of Master of Accountancy (M.Acct.) in accounting and the Master of Science (M.S.) in economics. The M.Acct. degree qualifies students to enter the public accounting profession in auditing, tax, or other positions ultimately requiring a Certified Public Accountant (CPA) license. The M.S. in economics provides students with a firm background in theory, and then emphasizes training in policy analysis and applied studies.

Graduate students must fulfill the requirements of the College of Graduate Studies and the department in which they study.

Standing of the College

Fully accredited by AACSB—The International Association for Management Education and the Northwest Association of Schools and Colleges, the College of Business and Economics keeps apace of developments in business through membership in various professional organizations and by consultation with Idaho business leaders, particularly through the CBE Advisory Board. The quality of the program has been recognized by Idaho leaders through the awarding of the Idaho Quality Award. In addition, the outstanding achievements of CBE graduates in business and government, and in professional certification examinations, such as the CPA exam, also attest to the quality of the programs.

General Requirements for Graduation

University Requirements. See regulation J-3 in part 3 for requirements that all students in the university must meet.

College Requirements. Before proceeding to upper-division work, students registered in the College of Business and Economics must: (1) complete at least 58 semester credit hours with a minimum cumulative grade-point average of 2.00 and (2) complete and earn at least a 2.35 grade-point average in Econ 272, Foundations of Economic Analysis, or Econ 201 and 202, Principles of Economics; Acct 201 and 202, Introduction to Financial Accounting and Introduction to Managerial Accounting; and Stat 271, Statistical Inference and Decision Analysis.

A student is required to take at least 64 credits of nonaccounting, nonbusiness law, and nonbusiness course work. Undergraduate students enrolled as majors in the College of Business and Economics may not take any course required for the major on a pass/fail basis, with the exception of those courses offered only on a P/F basis.

Courses completed at a two-year college for transfer into the CBE core or major must be validated before they will be accepted for upper-division course requirements. Validation procedures are established by the faculty members of the CBE department offering these courses. Validation techniques include a proficiency examination, CLEP testing, or successful completion of an additional advanced course in the given field.

Candidates for the B.S.Bus. degree must be accepted officially as majors in the College of Business and Economics for at least their last two semesters before graduation, excluding summer sessions, and complete at least the last 24 credit hours applicable toward their degree during this period.

At least 50 percent of the College of Business and Economics credit hours applied to a B.S.Bus. degree must be earned at the University of Idaho.

All majors require the completion of at least 128 credit hours. The required program of study includes: (1) at least 64 credit hours of nonaccounting, nonbusiness law, and nonbusiness course work, (2) 34 credit hours in the business and economics core, and (3) the major-specific required credit hours in the selected CBE major field. Additional undesignated electives are included in the 128 required credit hours.

A. *UNIVERSITY/CBE GENERAL CORE REQUIREMENTS:*

Communication*:
- Comm 101 Fundamentals of Public Speaking 2
- Engl 101 Introduction to College Writing 3
- Engl 102 College Writing & Rhetoric 3
- Engl 207 Persuasive Writing or 208 Personal & Exploratory Writing or 209 Inquiry-Based Writing or 313 Business Writing or 317 Technical & Engineering Report Writing 3

Mathematics:
- At least two courses in mathematics numbered 130 or higher including at least one course in calculus 7-8
- Stat 271 Statistical Inference & Decision Analysis 4

Social Sciences:
- Econ 272** Foundations of Economic Analysis or Econ 201, 202 Principles of Economics 4-6
- Social science elective*** 3

Humanities:
- Phil 103 Ethics 3
- Humanities elective*** 3
- Literature elective 3

Natural and Applied Sciences:
- Natural and applied sciences electives*** 8

Other courses:
- Acct 201, 202 Intro to Financial Accounting & Managerial Accounting 6
- Bus 100 The Business Profession 1
- BLaw 265 Legal Environment of Business 3
- Nonbusiness electives 6-8

* Accounting majors take an additional six credits of communication or writing courses (upper division preferred).

** Students selecting Econ 272 must take one additional UI core course in humanities or social science.
*** To be chosen from courses that will satisfy regulation J-3; accounting majors must select Anth 100, Psyc 101, or Soc 101 under social sciences.

B. *CBE COMMON PROGRAM REQUIREMENTS:*

Bus 340 Team Building and Group Dynamics	2
Bus 341 Business Systems	4
Bus 342 Product and Process Planning	3
Bus 343 Planning & Decision-Making in Organizations	2
Bus 344 Managing the Firm's Resources	3
Bus 345 Business Operating Decisions	4
Bus 490 Strategic Management	3
Upper-division economics electives	3

C. *REQUIREMENTS IN MAJOR* (major-specific required credits).

D. *ELECTIVES.* Chosen in consultation with the student's adviser.

Undeclared Status

A student may enter CBE as a freshman in an undeclared status. Because the first two years are equivalent programs in all CBE majors, he or she may remain in the undeclared status until reaching junior level (completion of 58 credits). At that time, a major in the college should be selected. The undeclared status allows a student time to become acquainted with the majors within the college and to solidify career objectives before choosing a major.

College of Education

N. Dale Gentry, Dean (301 Educ. Bldg.; 208/885-6772); Jeanne S. Christiansen, Associate Dean; Jerry L. Tuchscherer, Associate Dean.

The College of Education was organized as an independent unit of the university in 1920. It is the principal teacher-education unit and consists of the Division of Adult, Counselor, and Technology Education, Division of Health, Physical Education, Recreation and Dance, and the Division of Teacher Education. Undergraduate programs leading to degrees in teaching fields are offered in business education, dance (teaching option), elementary education, industrial technology education, marketing education, physical education, school and community health education, secondary education, special education, technology education, and vocational education (teaching option). Programs leading to nonteaching degrees include: dance, industrial technology, office administration, physical education, recreation, and sport science.

The education of professional personnel for the public schools constitutes a service to the state and its people and to the education profession. One of the first duties of the college is that of ensuring that anyone who applies for admission to a program leading to educational service is qualified by preparation and personal attributes for this important work. Once admitted, the student undertakes a program that has as its objective the assurance that the candidate has laid the foundation for a broad, general education, has completed a basic study of the professional functions of the teacher, and has gained substantial competence in the subjects to be taught or in the area in which he or she will serve.

Besides preparing personnel for the schools, the college provides educational leadership for the people of Idaho, to the state's education system, and to the teaching profession through consultation, participation in organizational activities, and research. Preparation is provided in all of the major areas of professional education.

Accreditation and Program Approval

The College of Education is fully accredited by the National Council for the Accreditation of Teacher Education and the National Association of State Directors of Teacher Education and Certification. The programs of study in education are planned to meet certification requirements in Idaho, those of most other states, and the requirements of the various accrediting agencies, such as the Northwest Association of Schools and Colleges.

Center for Evaluation Research and Public Service

The Center for Evaluation Research and Public Service was established to conduct research, to facilitate research by College of Education faculty members and graduate students, and to be of assistance to local school districts and to other educational institutions. Research, study, and statistical facilities are made available to students and faculty through the center. The Upward-Bound Program, designed to help youth from low-income families achieve a college education, is housed in the center.

Center personnel have cooperated with local school districts and with the Idaho State Department of Education in such activities as school district surveys, the development and implementation of programs under federal acts, school district reorganization studies, and certification studies. Research reports or monographs on these and other activities are published through the center.

The center is financed in part through cost-reimbursement funds from state and federal sources.

Admission Requirements

Admission to the University. For a statement of general undergraduate and graduate admission requirements, see part 2 of this catalog.

Transfer Students. Students who have attended college, whether at another institution or in another division of the university, before matriculation in the College of Education, must have a grade-point average of 2.00 (C) or better. The approval of the dean of the College of Education is necessary for the admission of transfer students.

Degrees and Programs Offered

Undergraduate. Baccalaureate degrees offered by this college are the Bachelor of Science in Education, Bachelor of Science in Business Education, Bachelor of Science in Office Administration, Bachelor of Science in Physical Education, Bachelor of Science in Recreation, Bachelor of Dance, and Bachelor of Science in Technology. See part 5 for the programs of studies leading to these degrees.

Graduate. The College of Graduate Studies offers work toward advanced degrees in several disciplines of the college. Students must fulfill the requirements of the Graduate College and of the division in which they intend to study. Consult the College of Graduate Studies section of part 4 for further information.

In the College of Education, graduate programs include advanced degrees and a planned fifth year in teacher education. Upon the completion of the appropriate programs of study, the following degrees are conferred: Master of Science, Master of Education, Education Specialist in Adult Education, Education Specialist in Counseling and Human Services, Education Specialist in Education, Education Specialist in Educational Administration, Education Specialist in School Psychology, Education Specialist in Special Education, Education Specialist in Vocational Education, Doctor of Education, and Doctor of Philosophy.

Studies at the master's level are offered in adult education, business education, counseling and human services, educational administration, educational technology, elementary education, industrial technology education, physical education, recreation, secondary education, special education, and vocational education.

Doctoral candidates majoring in education may concentrate in adult education, counseling and human services, education, educational administration, elementary education, higher education, physical education, secondary education, special education, or vocational education.

Teacher Education Programs

At the University of Idaho, the preparation of teachers is a cooperative enterprise between the College of Education and other colleges. Coordination is achieved through the Teacher Education Coordinating

Committee, which is made up of representatives from the professional and academic areas involved. The screening of all applicants for admission to Teacher Education Programs is the responsibility of the College of Education, and the dean of the College of Education is the recommending authority for certification.

Students preparing for a career in secondary teaching have the option of completing their bachelor's degrees in the College of Education (except for agricultural education, family life education, and music education) or in the department of their subject major.

Secondary teacher education students have an adviser from the College of Education who is the primary adviser on teacher education requirements, and an adviser from the academic discipline. When a student identifies teacher education as his or her objective (this could be as early as the freshman year and certainly no later than admission to Teacher Education Programs), the education adviser is designated.

Admission to Teacher Education Programs. Upon completion of the first semester of the sophomore year, or 40 credits, all students in the College of Education and all students majoring in other colleges who plan to enter Teacher Education Programs must make application for admission to the program. Criteria for admission to the Teacher Education Programs include the following: (1) completion of at least 40 semester credits with a 2.50 cumulative GPA including any transfer credits and/or credits earned in a prior degree program; (2) completion of Engl 102 or equivalent transfer English composition course, university core mathematics or statistics course, and Comm 101 with no grade lower than a C and two grades of B or higher; (3) completion of ED 201 with a grade of B or higher and verification of successful completion of the field experience; (4) completion of the college approved technology screening test or BuEd 111 or equivalent course with grade of B or higher; (5) verification of 100 hours of service with children and youth in instructional settings within the last five years; (6) signature of an authorized education adviser; and (7) approval of the college Admission, Petition, and Retention Committee. The approval of the dean is required for admission to Teacher Education Programs. Admission to Teacher Education Programs does not carry with it permission to enroll in the student teaching semester. Additional procedures and conditions apply as noted elsewhere in this section and as noted in the prerequisites to specific courses.

Clinical Experience in Teacher Education

The study of teaching and learning theory is given practical application through field experience in both campus and field settings. Students preparing to become teachers have early involvement with school pupils and experienced teachers through field components for all students in ED 201, Diverse Learners in Schools and Social/Cultural Contexts, and campus or field laboratory components for special education majors. Additional experience is provided students as they continue professional studies through simulated teaching situations on campus and through field laboratory components for students in methods courses. A culminating clinical teaching experience is provided in student teaching or a graduate internship.

Student Teaching

Admission. For admission to senior practicum courses (AgEd 460, Dan 433, ED 430, 431, EDTE 435, FCS 471, MusT 432, PEP 431, EDSP 480, and PTE 471), the student must have satisfied the following requirements: (1) have been admitted to or continued in Teacher Education Programs; (2) have a grade-point average of at least 2.50; (3) have a grade of C or better in the common core education courses; (4) have a minimum 2.25 GPA in the teaching majors or minors; (5) have satisfied the other prerequisites stated in the description of the particular practicum course for which he or she wishes to register; and (6) have applied for admission to student teaching by January 1 of the school year before enrolling for the field experience. Consult the director of clinical experiences in teacher education for more specific information.

The Program. Student teaching is carried out in cooperating public schools so that students may obtain experience under typical school conditions. Normally it is scheduled for a semester of full-time teaching in centers designated by the College of Education.

Students should register for ED 445, Proseminar in Teaching, the same semester as their student teaching.

The College of Education does not permit students enrolled in any student teaching course to concurrently function as head coach in any school sponsored sport at any grade level, whether paid or voluntary. Students who desire to function as assistant coaches must have written approval of the division chair and the director of clinical experiences (adopted 1996).

Graduate Practicum and Internship in School Positions

Admission. Admission to practicum and internship courses is conditioned upon acceptance in a graduate program and approval of the major professor and/or student's committee.

The Program. Graduate students are provided clinical experience in the study of teaching and learning and in the performance of other school positions through graduate practica and internships (see courses 597 and 598 in the various subject fields in the college).

Teacher Certification

Students who complete Teacher Education Programs at the university are eligible to receive the Idaho Standard Elementary School Certificate, the Standard Secondary School Certificate, the Exceptional Child Certificate, or the Standard Vocational Certificate. Those who complete an approved, planned fifth-year program in teacher education or an approved master's degree program are eligible to receive the Advanced Elementary School Certificate or the Advanced Secondary School Certificate. Students who complete the professional certificate program in school counseling or school psychology qualify for the Idaho Pupil Personnel Services Certificate. Students completing a master's degree, specialist degree, or doctorate in educational administration may qualify for an administrator's certificate. The College of Education reserves recommendations for initial teacher certification to students who have completed the approved teacher preparation program and hold a bachelor's degree.

Procedures. The student initiates the certification process by obtaining an application for teacher certification from the College of Education. The application is completed and signed by the student's adviser and is then forwarded to the dean of the College of Education who works with the registrar to get the necessary supporting credentials and forwards the materials to the State Department of Education Office of Teacher Certification. The College of Education maintains a record of all students recommended for teacher certification, and it is understood that recommendations concerning a student's competence are made by the department in which the skills and concepts are taught.

Secondary School Teaching Certification for Majors Outside the College of Education

Students admitted to Teacher Education Programs who are enrolled in an academic department other than education normally satisfy the requirements for the Idaho Standard Secondary School Certificate by including the core listed below as electives in their program for the baccalaureate degree and by completing one of the following options: (1) one 60-credit teaching major; (2) one 40-credit teaching major and one 20-credit teaching minor; (3) one 30-credit teaching major and one 20-credit teaching minor; or (4) two 30-credit teaching majors. (See "Teaching Majors and Minors" at the conclusion of the College of Education section.)

Core. Diverse Learners in Schools and Social/Cultural Contexts, 3 cr (ED 201); Educational Psychology, 2 cr (ED 312); Educational Measurement, 1 cr (ED 313); Strategies for Teaching, 3 cr (ED 314); Special Methods, 3 cr (EDTE 474, 475, 476, 477, 478, 479, or another approved special methods course); Literacy Methods for Content Learning, 3 cr (EDTE 463); Proseminar in Teaching, 3 cr (ED 445); Practicum, 14 cr (ED 431 or another approved practicum course); Historical and Philosophical Foundations of Education, 3 cr (ED 468); Introduction to Psychology, 3 cr (Psyc 101)

Exceptions. Teacher education students majoring in the College of Education, the Department of Agricultural and Extension Education, the Ritchie School of Family and Consumer Sciences, or the Hampton School of Music have slightly different requirements. See the curricula for these fields in the corresponding appropriate departmental sections.

Application for Certification. See procedures listed under Teacher Certification.

General Requirements for Graduation

University Requirements. See regulation J in part 3 for requirements that all students in the university must meet.

College Requirements. All candidates for a baccalaureate degree in the College of Education must complete 128 semester credits, of which at least 36 must be in upper-division courses. The following course requirements apply to all undergraduate teacher education students in the college (see the major curricula in dance, office administration, recreation, sport science, technology, and vocational education for the special requirements applicable to those programs):

A. *GENERAL STUDIES REQUIREMENTS FOR ELEMENTARY SCHOOL TEACHING (57 credits minimum).* In order to apply toward this requirement, courses must be other than education and be selected from among the humanities, social sciences, and natural sciences. Credits earned in these fields to satisfy the teaching minor may apply if they do not deal primarily with the methodology, procedures, or materials of teaching. Each of the following areas must be represented as indicated:

1. *Communications (8 credits)* (prerequisite basic skills for writing), including essay writing (Engl 102), advanced composition, and speech. The UI core curriculum requires Engl 102 and 2-4 credits from the core list.

2. *Humanities (10 credits),* including 6 credits of literature, 2 credits of art, and 2 credits of music selected from nonmethods courses. Six to eight credits should be selected from the core curriculum humanities list.

3. *Psychology (6 credits),* including introductory psychology (Psyc 101) and developmental psychology (Psyc 305).

4. *Social Science (12 credits),* including one course in American history (Hist 111 or 112), one course in American government (PolS 101), and 6 other credits from social sciences (other than psychology). Three to five credits must be from the UI core curriculum list.

A total of 14 credits must be from the humanities and social science core list categories.

5. *Science (12 credits),* including biological, earth, and physical science courses requiring laboratory work. Select 4 credits each from the areas of (a) life sciences, (b) earth sciences, and (c) physical sciences. At least 8 credits must be from the UI core curriculum list in natural and applied sciences.

6. *Mathematics (9 credits):* Math 235-236, Math for Elementary Teachers I-II, and Math 137 or 143 (refer to prerequisites for Math 235-236).

B. *GENERAL STUDIES REQUIREMENTS FOR SECONDARY SCHOOL TEACHING (34 credit minimum).* In order to apply toward this requirement, courses must be other than education and be selected from among the humanities, social sciences, and natural sciences. Credits earned in these fields to satisfy the teaching major or teaching minor may apply if they do not deal primarily with the methodology, procedures, or materials of teaching. Each of the following areas must be represented as indicated:

1. *Communications (8 credits)* (prerequisite basic skills for writing), including essay writing (Engl 102), advanced composition, and speech. The UI core curriculum requires Engl 102 and 2-4 credits from the core list.

2. *Humanities (6 credits),* including at least 3 credits of literature. The UI core curriculum requires that 6 to 8 credits be selected from the humanities category.

3. *Psychology (3 credits):* Psyc 101, Introduction to Psychology.

4. *Social Science (6 credits),* including at least one course in American history (Hist 111 or 112) or American government (PolS 101). Three credits must be selected from the UI core list in this category (other than psychology).

The UI core curriculum requires 14 credits in the combined categories of humanities and social sciences. The core social science list includes Psyc 101.

5. *Science-Mathematics (11 credits),* including biological, earth, or physical science courses requiring laboratory work. The UI core curriculum requires 8 credits from natural and applied sciences and 3 credits of mathematics/statistics/computer science.

C. *UNIFORM PROFESSIONAL EDUCATION REQUIREMENTS:*

ED 201 Diverse Learners in Schools & Social/Cultural Contexts	3
ED 301 Principles of Learning & Development in Education	3
ED 302 Curriculum, Instruction, & Assessment Strategies	3
ED 401 Professional Role Development	3
ED 430 or 431 or EDSP 480 Practicum	14

Note: Secondary education majors must take EDTE 463, Literacy Methods for Content Learning, and the special methods course appropriate to their discipline.

Major Curricula

Students in the College of Education must complete a major curriculum that leads to a degree granted by the college (B.Dan., B.S.Ed., B.S.Bus.Ed., B.S.P.E., B.S.Rec., B.S.Tech., or B.S.O.Ad.). These major curricula (with the degree goal identified) are listed in part 5.

Careful distinction should be made between a student's "major curriculum" and any additional "teaching majors" or "teaching minors" leading to certification.

Teaching Majors and Minors in the College of Education

Students seeking certification or a degree in secondary education must complete the options for teaching majors and minor as noted.

The various teaching majors and teaching minors required to accompany several of the curricula are outlined below. Because the College of Education reserves the right to approve or disapprove the content of all proposed majors and minors, students should confer closely with their college advisers and with advisers in the academic department concerned in the selection of these courses.

AGRICULTURAL EDUCATION

The major in agricultural education is offered only in the major curriculum leading to the degree of B.S.Ag.Ed. (see below). A teaching major in agricultural education is not offered.

AMERICAN STUDIES

There is no teaching endorsement in American studies in the state of Idaho. However, students earning a degree in American studies through the College of Letters and Science are able to work toward endorsements in English, history, or social science depending on which emphasis they choose in the American studies curriculum and by choosing their electives carefully. Students seeking endorsement in English will take EDTE 475 as their special methods course, and students seeking endorsement in history or social studies will take EDTE 476 as their special methods course. American studies students seeking endorsement should read the appropriate section under the English heading, the history heading, or the social science heading in this part of the catalog.

ART

A. 42-CREDIT ART TEACHING MAJOR

Art 100 Visual Art	3
Art 111-112 Drawing I-II	6
Art 121-122 Visual Communication & the Design Process	6
Art 301 History of Art: 19th Century	3
Art 302 History of Art: 20th Century	3
Courses selected from the following	18
Art 211 Drawing III	
Art 214 Textile Design I	
Art 215 Textile Design II	
Art 221 Graphic Design I	
Art 231 Painting I	
Art 241 Sculpture I	
Art 251 Printmaking I	
Art 261 Ceramics I	
Art 271 Interface Design I	
Art 281 Watercolor I	

Comm 281 Understanding Photography
One art studio course (Art 311, 321, 331, 341, 351, or 361) 3

B. 22-CREDIT ART TEACHING MINOR

Art 100 Visual Art 3
Art 111-112 Drawing I-II 6
Art 121-122 Visual Communication & the Design Process 6
Courses selected from Art 211, 214, 215, 221, 231, 241, 251, 261, 271, 281, Comm 281, or Art 311, 321, 331, 341, 351, 361 7

BIOLOGICAL SCIENCES

Note: Organic chemistry is a prerequisite to required botany and zoology courses; Math 143 is a prerequisite to required physics courses. A grade of "D" in any of the required courses listed below will not count toward completion of the degree in either the 63-credit composite teaching major or the 25- or 26-credit composite teaching minor.

A. 63-CREDIT COMPOSITE TEACHING MAJOR

Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
Bot 241 Systematic Botany 3
Bot 311 Plant Physiology 4
Bot 425 Developmental Plant Anatomy 3
Chem 275 Carbon Compounds 3
Geog 100 Physical Geography or Geol 101 Physical Geology 4
MMBB 250 General Microbiology 5
Phys 111-112 General Physics I-II 8
Zool 324 Comparative Vertebrate Anatomy or 472, 473 Developmental Biology & Lab 4
Zool 423 Comparative Vertebrate Physiology 4
Approved electives from molecular biology and biochemistry, biology, botany, entomology, or zoology 7

B. 25- OR 26-CREDIT COMPOSITE TEACHING MINOR

Note: One course in college chemistry is a prerequisite to Biol 201; organic chemistry is a prerequisite to Bot 311 and Zool 423.
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
Bot 241 Systematic Botany or 311 Plant Physiology or 425 Developmental Plant Anatomy 3-4
Zool 324 Comparative Vertebrate Anatomy or 423 Comparative Vertebrate Physiology 4

BUSINESS EDUCATION

The major in business education is offered only in the major curriculum leading to the degree of B.S.Bus.Ed.

20- OR 22-CREDIT BUSINESS EDUCATION TEACHING MINOR

BuEd 102 Typewriting II 2
BuEd 202 Introduction to Business, Marketing, & Economic Ed 2
BuEd 395 Administrative Office Procedures 3
BuEd 430 Supervising Business Professionals of America 2
BuEd 491/492 Teaching Business Education Methods 4-6
Acct 201 Introduction to Financial Accounting 3
Econ 272 Foundations of Economic Analysis 4

NOTE: This minor will not meet professional-technical certification requirements, but will enable the student to apply for a provisional professional-technical certificate.

Other required courses for professional-technical certification include:

ACTE 444 Diverse Populations & Individual Differences 2-3
ACTE 457 Transitioning to Work 3
ACTE 460 Using Internet-Based Career Information in the Classroom 2-3
PTE 351 Principles & Philosophy of Professional-Technical Education 3

CHEMISTRY

Note: See the physics and mathematics prerequisites for the chemistry courses listed below.

A. 42- OR 43-CREDIT CHEMISTRY TEACHING MAJOR

Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 275, 276 Carbon Compounds & Lab and MMBB 380, 382 Intro Biochem & Lab or Chem 277, 278 Organic Chem I & Lab and Chem 372, 376 Organic Chem II & Lab 8-9
Chem 302, 303 Principles of Physical Chemistry & Lab 4
Biol 201 Introduction to the Life Sciences 4
Math 170 Analytic Geometry & Calculus I 4
Phys 111-112 General Physics I-II 8

B. 21-CREDIT CHEMISTRY TEACHING MINOR

Chem 111 Prin of Chemistry I or 101 Intro to Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 275, 276 Carbon Compounds & Lab 4
Chem 302, 303 Principles of Physical Chemistry & Lab 4
MMBB 380 Introductory Biochemistry 4

COMPUTER SCIENCE

Computer science is not an area of endorsement for Idaho certification. Students may complete a secondary minor in computer science only under the 30-20-20 option where the 30 credit major and one of the 20 credit minors are in endorsement areas.

21-CREDIT COMPUTER SCIENCE TEACHING MINOR

CS 112 Introduction to Problem Solving & Programming 3
CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
CS 245 Computer Organization & Architecture 4
Math 176 Discrete Mathematics 3
Electives chosen from the following 5
- CS 307 History of Calculating & Computing
- CS 310 Computing Languages
- CS 324 Computer Graphics
- CS 381 Software Engineering
- Math 475/CS 495 Analysis of Algorithms
- Math 485/CS 490 Theory of Computation

CONSUMER ECONOMICS

A teaching major in consumer economics is not offered. Students selecting a minor in consumer economics must have a major in social science, family and consumer sciences, business education, or marketing education to meet both college graduation requirements and state certification requirements.

20-CREDIT CONSUMER ECONOMICS TEACHING MINOR

BLaw 265 Legal Environment of Business 3
BuEd 418 Teaching Consumer Economics 2
Econ 201, 202 Principles of Economics 6
FCS 448 Consumer Economic Issues 3
Electives chosen from the following 6
- Acct 201 Introduction to Financial Accounting
- Bus 321 Marketing
- Bus 364 Insurance
- Econ 343 Money & Banking
- FCS 123 Textiles
- FCS 346 Personal & Family Finance & Management
- FCS 428 Housing America's Families

COUNSELING AND HUMAN SERVICES

An undergraduate major is not offered in counseling and human services. Students who wish to qualify for counseling and human services may qualify as teachers in any subject area and enroll in counseling programs later in graduate school. Those definitely planning to become counselors should seek advice from the counseling faculty. Those who do not wish to qualify as teachers may arrange for a special one-semester counseling internship in addition to the graduate program in counseling and human services.

DANCE

The major in dance is offered only in the major curriculum leading to the degree of B.Dan.

21-CREDIT DANCE TEACHING MINOR

The dance minor provides broad experiences in techniques, composition, production, and teaching.

Dan 105 Dance (ballet, jazz, modern) 4
Dan 112 Recreational Dance Forms 2
Dan 210 Dance Theatre 1
Dan 321 Dance Pedagogy 3
Dan 325 Dance Production 3
Dan 383 Dance Composition 2
Dan 420 Dance Accompaniment or Dan 320 Labanotation 3
Dan 421 Dance History 3

EARTH SCIENCE

Due to extensive course overlap, earth science majors may NOT select geology as a teaching minor.

A. 61-CREDIT EARTH SCIENCE TEACHING MAJOR

Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology or Biol 203 General Botany 4
Chem 111 Principles of Chemistry I 4
Geog 100 Physical Geography 4
Geog 401 Climatology 3
Geol 101 Physical Geol or Geol 111 Physical Geol for Sc Majors 4
Geol 102 Historical Geology 4
Geol 212 Principles of Paleontology 4
Geol 260 Survey of Minerals 2
Geol 324 Principles of Stratigraphy & Sedimentation 4
Geol 335 Geomorphology 3
Geol 405 Earth Sciences 3
Geol 408 Field Methods in the Earth Sciences 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
Phys 103, 104 General Astronomy & Lab 4
Phys 111-112 General Physics I-II 8

B. 40-CREDIT COMPOSITE TEACHING MAJOR

Geog 100 Physical Geography 4
Geog 401 Climatology 3
Geol 101 Physical Geol or Geol 111 Physical Geol for Sc Majors 4
Geol 102 Historical Geology 4
Geol 212 Principles of Paleontology 4
Geol 260 Survey of Minerals 2
Geol 335 Geomorphology 3

Geol 405 Earth Sciences 3
Geol 408 Field Methods in the Earth Sciences 3
Phys 103, 104 General Astronomy & Lab 4
Courses selected from the following 6
- Geog 180 Spatial Graphics
- Geog 380 Cartography & Graphic Communication
- Geol 261 Lithology
- Geol 360 Geologic Hazards
- Geol 361 Geology & the Environment

ECONOMICS

A teaching major in economics is not offered.

20-CREDIT ECONOMICS TEACHING MINOR

Econ 201, 202 Principles of Economics 6
Econ 351 Intermediate Macroeconomic Analysis 3
Econ 352 Intermediate Microeconomic Analysis 3
Additional upper-division credits in economics 8

EDUCATIONAL ADMINISTRATION

No undergraduate major or minor is offered in educational administration. Students who are planning to go into this field must first obtain a bachelor's degree, complete requirements for teacher certification, and have teaching experience, then enter the College of Graduate Studies to pursue a program leading to an advanced degree in educational administration.

ENGLISH

A. 42-CREDIT ENGLISH TEACHING MAJOR

Engl 257 or 258 Literature of Western Civilization 3
Engl 210 Reading - Writing - Texts 3
Engl 309 Advanced Prose Writing 3
Engl 341-342 Survey of British Literature 6
Engl 343-344 Survey of American Literature 6
Engl 345 Shakespeare 3
Engl 401 Writing Workshop for Teachers 3
Engl 441 Introduction to Study of Language 3
Engl 442 or 443 or 496 Linguistics 3
Engl 445 Literature for Adolescents 3
One 400-level area literature course 3
One literature course focusing on multicultural literature (Engl 480, 483, 484; or 295, 404, 481, or 482 when those courses include a major and specific selection of ethnic literature) 3

B. 33-CREDIT ENGLISH TEACHING MAJOR

Engl 210 Reading - Writing - Texts 3
Engl 309 Advanced Prose Writing 3
Engl 341-342 Survey of British Literature 6
Engl 343-344 Survey of American Literature 6
Engl 401 Writing Workshop for Teachers 3
Engl 441 Introduction to Study of Language 3
Engl 442 or 443 or 496 Linguistics 3
Engl 445 Literature for Adolescents 3
One literature course focusing on multicultural literature (Engl 480, 483, 484; or 295, 404, 481, or 482 when those courses include a major and specific selection of ethnic literature) 3

C. 24-CREDIT ENGLISH TEACHING MINOR

Engl 210 Reading - Writing - Texts 3
Engl 309 Advanced Prose Writing 3
Engl 341 Survey of British Literature 3
Engl 343 Survey of American Literature 3
Engl 342 or 344 British or American Literature 3
Engl 401 Writing Workshop for Teachers 3
Engl 441 Introduction to Study of Language 3
Engl 445 Literature for Adolescents 3

D. 33-CREDIT ENGLISH TEACHING MAJOR THROUGH AMERICAN STUDIES

Students complete the College of Letters and Science major in American studies with the following specifications:
Courses from the American Studies requirements
- Engl 343-344 Survey of American Literature 6
- Engl 341 or 342—one of the two required courses in English (British) literature 3
- Electives in American English, selected from the list of electives in the curricular requirements of the lit emphasis in the American Studies degree (incl Engl 441 and 3 cr of a literature course with multicultural emphasis) 12

Courses in addition to those required for the literature emphasis of the American Studies degree:
- Engl 210 Reading - Writing - Texts 3
- Engl 309 Advanced Prose Writing 3
- Engl 401 Writing Workshop for Teachers 3
- Engl 445 Literature for Adolescents 3

ENGLISH AS A SECOND LANGUAGE

A teaching major in English as a second language is not offered.

21-CREDIT ENGLISH AS A SECOND LANGUAGE TEACHING MINOR

Engl 404 Special Topics: ESL Methods 3
Engl 441 Introduction to the Study of Language 3
Engl 442 Introduction to English Syntax 3
Anth/Soc 322 Racial & Ethnic Relations 3
Electives, of which at least two courses are in English language and linguistics (Anth 220 may be used for the third course) 9

FAMILY LIFE EDUCATION

An option in family life education is offered only in the major curriculum leading to the degree of B.S.F.C.S.

FRENCH

Basic language courses taken in high school or elsewhere may be evaluated for college equivalencies as part of this teaching major and minor. Consult the Department of Foreign Languages and Literatures for policies on advanced placement.

A. 40-CREDIT FRENCH TEACHING MAJOR

Fren 101-102 Elementary French I-II 8
Fren 201-202 Intermediate French I-II 8
Fren 301 Advanced French Grammar 3
Fren 302 Advanced French Writing Skills 3
Fren 304 Connecting French Language & Culture 4
Fren 305 Reading French Texts 3
Fren 408 Topics in French Culture & Institutions 3
Fren 449 Practicum in Tutoring 1-2
Electives chosen from the following 7-10
- Engl 441 Introduction to Study of Language
- FLEN 243 English Word Origins
- Approved upper-division course in literature
- Approved upper-division French electives

B. 22-CREDIT FRENCH TEACHING MINOR

Fren 101-102 Elementary French I-II 8
Fren 201-202 Intermediate French I-II 8
Approved upper-div French electives (either Fren 301 or 302 is reqd; lab-based and lit in translation courses are not acceptable) 6

Note: A minor in French of less than 22 credits is not acceptable.

GEOGRAPHY

A. 30-CREDIT GEOGRAPHY TEACHING MAJOR

Geog 100 Physical Geography 4
Geog 165 Human Geography 3
Geog 180 Spatial Graphics 3
Geog 200 World Regional Geography 3
Geog 330 Urban Geog or 240 Econ Geog or 346 Transportation 3
Geog 364 Idaho & Pacific Northwest 3
Geog 385 GIS Primer 3
Geog 401 Climatology or 360 Population Dynamics & Distribution or 427 Decision Making in Resource Management 3
Geog 470 Computer Mapping 3
Additional geography courses to total 30 credits ..... —

B. 22-CREDIT GEOGRAPHY TEACHING MINOR

Geog 100 Physical Geography 4
Geog 165 Human Geography 3
Geog 180 Spatial Graphics 3
Geog 200 World Regional Geography 3
Geog 240 Economic Geography 3
Geog 401 Climatology or 360 Population Dynamics & Distribution or 427 Decision Making in Resource Management 3
Geog 470 Computer Mapping 3

GEOLOGY

A teaching major in geology is not offered.

20-CREDIT GEOLOGY TEACHING MINOR

Geol 101 Physical Geology 4
Geol 102 Historical Geology 4
Geol 212 Principles of Paleontology 4
Geol 260 Survey of Minerals 2
Geol 261 Lithology 2
Electives chosen from the following 4
- Geol 335 Geomorphology
- Geol 345 Structural Geology
- Geol 401 Field Geology & Report Writing

GERMAN

Basic language courses taken in high school or elsewhere may be evaluated for college equivalences as part of this teaching major and minor. Consult the Department of Foreign Languages and Literatures for policies on advanced placement.

A. 40-CREDIT GERMAN TEACHING MAJOR

Germ 101-102 Elementary German I-II 8
Germ 201-202 Intermediate German I-II 8
Germ 321 German Conversation 3
Germ 322 German Grammar & Composition 3
Germ 325-326 German Culture & Institutions 6
Germ 327-328 Survey of German Literature 3-6
Germ 420 Readings in German Literature 3
Engl 441 Introduction to Study of Language 3
Approved upper-division German electives 0-3

B. 22-CREDIT GERMAN TEACHING MINOR

Germ 101-102 Elementary German 8
Germ 201-202 Intermediate German 8
Approved upper-div German electives (either Germ 321 or 322 is reqd; lab-based and lit in translation courses are not acceptable) 6

Note: A minor in German of less than 22 credits is not acceptable.

HEALTH EDUCATION

A major in school and community health education is offered (see HPERD section for major requirements). Students minoring in health education who plan to apply for teacher certification must include a course in anatomy and physiology or general biology. A current advanced first aid and emergency care card is required upon graduation.

22- OR 23-CREDIT HEALTH EDUCATION TEACHING MINOR

Students minoring in health education who plan to apply for teacher certification must include a course in anatomy and physiology or general biology among the courses they select to meet the general studies requirements.

H&S 150 Wellness Lifestyles 3
H&S 289 Drugs in Society 2
H&S 316 School & Community Health Services 2
H&S 323 Health Education Methods & Administration 3
H&S 350 Stress Management & Mental Health 2
H&S 355 Accident Control, Prevention, & Human Ecology or H&S 450 Contemporary Issues in Health 2
H&S 436 Health & Wellness Promotion 3
FCS 205 Concepts in Human Nutrition or FCS 305 Nutrition Related to Fitness & Sport 3
FCS 240 Intimate Relationships or Psyc 330 Human Sexuality 3

HISTORY

A. 39-CREDIT HISTORY TEACHING MAJOR

Hist 101-102 History of Civilization 6
Hist 111-112 Introduction to U.S. History 6
Hist 290 The Historian's Craft 3
Upper-division history courses including:
- Non-regional U.S. history 3
- Latin American history 3
- Asian or African history 3
- Pre-1750 history from any region 3
- American non-European ethnic history 3
- Additional history courses 6

Note: A single course may satisfy more than one of the upper-division requirements.

B. HISTORY TEACHING MINOR

History courses chosen from the following 9
- Hist 101-102 History of Civilization
- Hist 111-112 Introduction to U.S. History
- Hist 180 Introduction to East Asian History
- Hist 210 Introduction to Modern Latin American History

American government 3
Upper-division history courses, including at least 3 cr in U.S., Latin American, or African history and at least 3 cr in Ancient European or Asian history 12

Note: Students must take at least 9 credits in U.S. history, which may include history of a state or region of the U.S.

C. 33-CREDIT HISTORY TEACHING MAJOR THROUGH AMERICAN STUDIES

American studies majors must take 9 credits in European or Asian history to maintain the required balance of old and new world history, plus 3 credits in American government.

INDUSTRIAL TECHNOLOGY EDUCATION

The major in technology education is offered only under the major curriculum leading to the degree of B.S.Ed.

30-CREDIT INDUSTRIAL TECHNOLOGY EDUCATION TEACHING MINOR

For certification to teach industrial technology education, a teaching minor must contain at least 20 credits, including not less than 15 credits distributed among and including each of the areas of metals, wood, drafting, and electricity-electronics. The remainder may be in allied or related areas. No substitution will be permitted for any of the courses required below.

ITED 120 Principles of Technology 4
ITED 130 Basic Electronics 4
ITED 218 Power, Energy, & Transportation Technology Systems 4
ITED 250 Manufacturing Technology Systems 4
ITED 265 Computer Aided Drafting/Design 2
ITED 280 Construction Technology Systems 4
ITED 328 Computer Operating Systems for Technology 4
ITED 360 Communication Technology Systems 4

JOURNALISM

A. 37-CREDIT JOURNALISM TEACHING MAJOR

Comm 111 Introduction to Communication Studies 3
Comm 121 Media Writing 3
Comm 222 Reporting 3
Comm 275 Introduction to Video Production 3
Comm 281 Understanding Photography 3
Comm 401 Practicum in Communication or 498 Internship 1
Comm 424 News Editing 3
Comm 425 Feature Article Writing 3
Five courses chosen from the following 15
- Comm 265 Advertising & Society
- Comm 270 Broadcast Commercial Writing/Production
- Comm 323 Public Affairs Reporting
- Comm 354 Publications Editing
- Comm 374 Broadcasting Newswriting/Reporting
- Comm 441 Ethics in Mass Communication
- Comm 444 Communication & Public Opinion
- Comm 445 History of Mass Communication
- Comm 448 Law of Mass Communication

B. 21-CREDIT JOURNALISM TEACHING MINOR

Comm 111 Introduction to Communication Studies 3
Comm 121 Media Writing 3
Comm 222 Reporting 3
Comm 275 Introduction to Video Production 3
Three courses chosen from the following 9
- Comm 270 Broadcast Commercial Writing/Production
- Comm 281 Understanding Photography
- Comm 323 Public Affairs Reporting
- Comm 354 Publications Editing
- Comm 425 Feature Article Writing
- Comm 441 Ethics in Mass Communication
- Comm 444 Communication & Public Opinion
- Comm 445 History of Mass Communication
- Comm 448 Law of Mass Communication

LATIN

Basic language courses taken in high school or elsewhere may be evaluated for college equivalencies as part of this teaching major or minor. Consult the Department of Foreign Languages and Literatures for policies on advanced placement.

A. 40-CREDIT LATIN TEACHING MAJOR

FLEN 211-212 Classical Mythology 4
FLEN 243 English Word Origins 2
FLEN 364 Literature of Rome 3
FLEN 442 Civilization of Ancient Rome 3
Latn 101-102 Elementary Latin I-II (or equivalent) 8
Latin at the 300 and/or 400 level (to include at least 1 credit but not more than 3 credits of Latn 369) 15
A methods course approved by adviser and classics section or Latn 449 Practicum in Tutoring 2
Electives chosen from the following 3-4
- Additional upper-division Latin courses (especially recommended)
- Engl 441 Introduction to Study of Language
- FLEN 363 Literature of Ancient Greece
- FLEN 441 Ancient Greek Civilization

B. 23-CREDIT LATIN TEACHING MINOR

Latn 101-102 Elementary Latin I-II (or equivalent) 8
FLEN 243 English Word Origins 2
FLEN 364 Literature of Rome or 442 Civilization of Ancient Rome 3
Latin at the 300 and/or 400 level (to include 1 credit of Latn 369) 10

Note: A minor in Latin of less than 20 credits is not acceptable.

LIBRARY SCIENCE

A teaching major in library science is not offered.

24-CREDIT LIBRARY SCIENCE TEACHING MINOR

The teaching minor in library science must total 24 credits. At least 12 of these must be in the areas of selection, organization, and administration of library materials. This teaching minor will qualify the student for the Idaho K-12 Education Media Generalist endorsement. Because library science is not a teaching field, the teacher-librarian must also qualify for a standard Idaho elementary or secondary teacher's certificate.

Note: Departmental approval and approval of site are required for the practicum; it is approved after the majority of the required course work has been completed.

LibS C420 Classification & Cataloging 4
LibS C421 Acquisitions & Collection Development in Libraries 3
LibS C422 Use of School Library and/or C423 Intro to Reference Work 2-5
LibS C425 Organization & Management of Small Libraries 4
LibS C427 Library & Media Center Practicum 1-3
Audiovisual aids and computer electives (minimum) 2
Note: The above selections must total at least 18 credits
Courses selected from the following 0-6
- EDTE 338 Children's Literature (3 cr)
- Engl 445 Literature for Adolescents (3 cr)
- Communication/graphic arts (6 cr)

MARKETING EDUCATION

The major in marketing education is offered only in the major curriculum leading to the degree of B.S.Ed. A teaching minor in marketing education is not offered.

MATHEMATICS

Math 143 and 144 may be necessary prerequisites for students with weak backgrounds.

A. 41-CREDIT MATHEMATICS TEACHING MAJOR

Note: Students who plan to apply for teacher certification with a mathematics teaching major must take EDTE 418 and 478.

Math 176 Discrete Mathematics 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 215 Seminar in Topology of the Plane 3

Math 286 Theory of Numbers 3
Math 330 Linear Algebra 3
Math 390 Geometry 3
Math 461 Abstract Algebra 3
CS 112 Introduction to Problem Solving & Programming 3
Stat 251 Principles of Statistics or Stat 301 Probability & Statistics
or Math 451 Probability Theory 3
Two of the following courses (one must be above 400) 6
Math 326 Linear Programming
Math 346 Applied Combinatorics
Math 376 Discrete Mathematics II
Math 411 Elementary Topology
Math 420 Complex Variables
Math 462 Abstract Algebra
Math 471 Advanced Calculus
Math 472 Advanced Calculus
Math 490 Introduction to Set Theory

B. 32-CREDIT MATHEMATICS TEACHING MAJOR

Note: Students who plan to apply for teacher certification with a mathematics teaching major must take EDTE 418 and 478.

Math 176 Discrete Mathematics 3
Math 170, 175 Analytic Geometry & Calculus 8
Math 215 Seminar in Topology of the Plane 3
Math 286 Theory of Numbers 3
Math 330 Linear Algebra 3
Math 390 Geometry 3
Math 461 Abstract Algebra 3
CS 112 Introduction to Problem Solving & Programming 3
Stat 251 Principles of Statistics or Stat 301 Probability & Statistics
or Math 451 Probability Theory 3

C. 20-CREDIT MATHEMATICS TEACHING MINOR

Note: Students who plan to apply for teacher certification with a mathematics teaching minor must take EDTE 478 (EDTE 418 is highly recommended).

Math 176 Discrete Mathematics 3
Math 170, 175 Analytic Geometry & Calculus 8
Math 286 Theory of Numbers or 215 Seminar in Topology of the Plane 3
Math 390 Geometry 3
Stat 251 Principles of Statistics or Stat 301 Probability & Statistics
or Math 451 Probability Theory 3

MUSIC EDUCATION

Majors in music education are offered only in the major curricula leading to the degree of B.Mus.

29-CREDIT VOCAL MUSIC TEACHING MINOR

MusA 147-148 Voice Class (qualified students may substitute
MusA 114 Individual Instruction: Voice) 2
MusA 145-146, 245-246 Piano Class 4
MusA 151 Guitar Class 1
MusA 387 Conducting I 2
MusC 139-140 Aural Skills I-II 4
MusC 141-142 Theory of Music I-II 4
MusH 101 Survey of Music (students may substitute MusH 111, 2 cr) 3
MusT 385 Choral Music in the Secondary School 2
MusT 389 Orff, Kodaly, & Dalcroze 2
MusT 485 Choral Ensemble Rehearsal Techniques 1
MusX 140 Convocation (two semesters) 0
Vocal ensembles 4

OFFICE OCCUPATIONS EDUCATION

20-CREDIT OFFICE OCCUPATIONS EDUCATION TEACHING MINOR

BuEd J210/J410 Alphabetic Shorthand I 2
BuEd 102 Typewriting II 2
BuEd 185 Machine Calculation 2
BuEd 395 Administrative Office Procedures 3
BuEd 415 Microcomputer Applications 3
BuEd 419 Information Processing Management 3
BuEd 492 Teaching Business Education II 2
Engl 313 Business Writing 3

PHYSICAL EDUCATION

Also see dance and health education.

The major in physical education is offered only under the major curriculum leading to the degree of B.S.Ed. (see HPERD section for major requirements).

30-CREDIT SECONDARY PHYSICAL EDUCATION TEACHING MINOR

Students who plan to apply for teacher certification must take first aid and anatomy and physiology. These requirements may be met by taking H&S 288 and Zool 120-121.

PE Skill & Analysis courses 4
PEP 201 Fitness Activities & Concepts 2
PEP 300 Human Kinesiology or 418 Physiology of Exercise 2-3
PEP 305 Applied Sports Psychology or 310 Cultural &
Philosophical Aspects of Sport 2-3
PEP 360 Motor Development & Control 3
PEP 380, 381 Measurement & Evaluation I & II 3
PEP 420 Methods & Materials in Physical Education 4
PEP 424 Physical Education for Special Populations 2
PEP 440 Physical Education & Sport Management 3
Dan 112 Recreational Dance Forms or
PEP 202 Skill & Analysis: Stunts & Tumbling 2
H&S 150 Wellness Lifestyles 3

PHYSICAL SCIENCES

40-CREDIT COMPOSITE TEACHING MAJOR

This is a 40-credit composite teaching major consisting of courses in chemistry, geology, and physics. A teaching minor in mathematics is recommended to accompany this teaching major.

Biol 100 Intro to Biology or Biol 201 Intro to the Life Sciences
or Geog 100 Physical Geog or Geog 401 Climatology 3-4
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 275 Carbon Compounds 3
Geol 101 Physical Geology 4
Phys 103 General Astronomy 3
Phys 211, 212, 213 Engineering Physics I, II, III 12
Phys 411 Physical Instrumentation I 3
Additional courses in chemistry, geology, or physics
to complete distribution required above ..... —

Recommended electives:
Chem 302 Principles of Physical Chemistry
MMBB 380 Introductory Biochemistry

PHYSICAL SCIENCE-LIFE SCIENCE

63-CREDIT COMPOSITE TEACHING MAJOR

Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Phys 211, 212, 213 Engineering Physics I, II, III 12
Phys 411 Physical Instrumentation I 3
Zool 120 Human Anatomy 4
Zool 121 Human Physiology 4
Courses in biology, chemistry, or physics 8
Electives chosen from the following 11
Biol 331 General Ecology
Geog 100 Physical Geography
Geog 401 Climatology
Intr 394 Technology & Societal Decisions
Intr 490 Technology & Human Values
MMBB 250 General Microbiology
Phys 103 General Astronomy

PHYSICS

A. 40-CREDIT PHYSICS TEACHING MAJOR

Phys 103 General Astronomy 3
Phys 211, 212, 213 Engineering Physics I, II, III 12
Phys 315 Introduction to Modern Physics 3
Phys 411 Physical Instrumentation I 3
Biol 201 Introduction to the Life Sciences 4
Chem 101 Intro to Chemistry I or 111 Prin of Chemistry I 4
Math 170, 175, 275 Analytic Geometry & Calculus 11

B. 20-CREDIT PHYSICS TEACHING MINOR

Phys 211, 212, 213 Engineering Physics I, II, III 12
Phys 315 Introduction to Modern Physics 3
Electives in physics (approved by adviser in Dept of Physics),
including at least 2 credits of lab work 5

POLITICAL SCIENCE

A. 30-CREDIT POLITICAL SCIENCE TEACHING MAJOR

The distribution of credits among the five fields below must be as follows: (1) 12-15 credits in U.S. government and political process, including PolS 101, Introduction to Political Science and American Government, and (2) 15-18 credits in the other four fields, including at least 3 credits in each field. Courses listed in more than one field may be counted in only one of those fields. Substitutions in specific courses may be made with the consent of the adviser. All 30 credits must be in political science courses; however, note that 6 additional credits in history are also required for certification in this field.

U.S. Government: Process and Policy
PolS 101, Introduction to Political Science & American Government
And 9-12 cr from the following: PolS 275, 431,
432, 433, 437, 439, 460, 464, 465, 469

Comparative Government and Politics
At least 3 credits from the following:
PolS 380, 381, 382, 480, 482, 483, 484, 485, 487

International Relations
At least 3 credits from the following:
PolS 237, 438, 440, 449

Public Administration and Public Law
At least 3 credits from the following:
PolS 451, 452, 454, 460, 467, 468, 469

Political Thought
At least 3 credits from the following:
PolS 425, 426, 428, 429

B. TEACHING MINOR IN POLITICAL SCIENCE

The teaching minor in political science is a minimum of 20 credits. Six additional credits of U.S. history are also required for certification in this field.

PolS 101 Introduction to Political Science & American Government 3
Three additional credits in U.S. govt (see the list of courses in U.S. Govt: Process and Policy under teaching major above) 3
Three credits in comparative govt (see the list of courses in Comparative Govt and Politics under teaching major above) 3
Other political science courses selected from those listed in the teaching major 11

PROFESSIONAL-TECHNICAL EDUCATION

Professional-technical education is offered only in the major curriculum leading to the degree of B.S.Ed. Teaching minors in professional-technical education are not offered.

PSYCHOLOGY

A. 30-CREDIT PSYCHOLOGY TEACHING MAJOR

The basic objective of this teaching major is to provide the undergraduate student with preparation that leads to teaching psychology in secondary schools, and/or to undertake graduate work in several related areas. Though psychology is an endorsement area, it is desirable to present two teaching minors in standard secondary-school subjects. At least a teaching minor in sociology/anthropology is recommended for those anticipating graduate work in guidance and counseling and school psychology. A second teaching major in lieu of two teaching minors is acceptable preparation. The composite teaching majors (e.g., social science or physical science), if elected as a second teaching major, should meet the stipulated credit requirement.

Psyc 101 Introduction to Psychology 3
Psyc 218 Introduction to Research in Behavioral Sciences 4
Psyc 305 Developmental Psychology 3
Psyc 310 Psych of Personality or 456 Psych of Emotion 3
Psyc 311 Abnormal Psychology 3
Psyc 320 Introduction to Social Psychology 3
Psyc 372 Physiological Psychology or 444 Sensation & Perception 3
Psyc 390 Psychology of Learning or 325 Cognitive Psychology 3
Stat 251 Principles of Statistics 3
Approved upper-division psychology elective 2

B. 20-CREDIT PSYCHOLOGY TEACHING MINOR

Psyc 101 Introduction to Psychology 3
Psyc 218 Introduction to Research in Behavioral Sciences 4
Psyc 305 Developmental Psychology 3
Psyc 390 Psychology of Learning 3
Stat 251 Principles of Statistics 3
Approved psychology electives 4

SOCIAL SCIENCE

A. 45-CREDIT COMPOSITE TEACHING MAJOR

Note: Due to extensive course overlap, social science majors may NOT select history as a second major or as a minor.

This 45-credit composite teaching major requires a minimum of 15 approved credits in history and at least 6 approved credits each in economics, geography, political science, and sociology or anthropology (all 6 credits in *either* sociology or anthropology). The remaining 6 credits are to be distributed among any two of these areas (excluding history and treating sociology and anthropology as one area). Required and other approved courses include:

History—Hist 101, 102, 111, 112, and one or more courses in modern U.S. or European history.

Economics—Econ 201 and 202; then 345 or 390 (if additional 3 credits are elected from this area).

Geography—Geog 165, 200, 330 (choose two or more).

Political Science—PolS 101 and choose one or more from 275, 381, 382.

Sociology—Soc 101 and any other sociology course (excluding courses on social welfare and services).

Anthropology—Anth 100 and any other anthropology course.

B. 45- OR 60-CREDIT TEACHING MAJOR THROUGH AMERICAN STUDIES

American studies majors add Hist 101, 102, 111, 112, and one or more courses in modern U.S. or European history. Also follow the credit distributions and recommended courses as stated above for economics, geography, political science, and sociology or anthropology.

SOCIOLOGY/ANTHROPOLOGY

A teaching major in sociology/anthropology is not offered.

20-CREDIT SOCIOLOGY/ANTHROPOLOGY TEACHING MINOR

Anth 100 Introduction to Anthropology 3
Anth 220 Peoples of the World or 329 North American Indians 3
Soc 101 Introduction to Sociology 3
Soc 230 Social Problems 3
Approved electives in anthropology and sociology 8

SPANISH

Basic language courses taken in high school or elsewhere may be evaluated for college equivalencies as part of this teaching major and minor. Consult the Department of Foreign Languages and Literatures for policies on advanced placement.

A. 40-CREDIT SPANISH TEACHING MAJOR

Span 101-102 Elementary Spanish I-II 8
Span 201-202 Intermediate Spanish I-II 8
Span 301 Advanced Grammar 3
Span 302 Advanced Composition 3
Span 305 Culture & Institutions of Spain 3
Span 306 Culture & Institutions of Latin America 3
Upper-division courses in Spanish language (9 credits must be at 400 level) 12

A maximum of 3 credits in FLEN 391, 393, or 394 may be counted toward a teaching major in Spanish.

B. 22-CREDIT SPANISH TEACHING MINOR

Span 101-102 Elementary Spanish I-II 8
Span 201-202 Intermediate Spanish I-II 8
Approved upper-div Spanish electives (either Span 301or 302 reqd; lab-based and lit in translation courses are not acceptable) 6

Note: A minor in Spanish of less than 22 credits is not acceptable.

SPEECH

A. 33-CREDIT SPEECH TEACHING MAJOR

Comm 101 Fundamentals of Public Speaking 2
Comm 111 Introduction to Communication Studies 3
Comm 132 Oral Interpretation 2
Comm 134 Nonverbal Communication 2
Comm 233 Interpersonal Communication 3
Comm 235 Organizational Communication 3
Comm 331 Conflict Management 3
Comm 332 Communication & the Small Group 3
Comm 333 Interviewing 3
Comm 431 Professional Presentation Techniques 3
Comm 441 Ethics in Mass Communication 3
EDTE 475 Secondary School English Methods 3

B. 23-CREDIT SPEECH TEACHING MINOR

Comm 101 Fundamentals of Public Speaking 2
Comm 132 Oral Interpretation 2
Comm 233 Interpersonal Communication 3
Comm 331 Conflict Management 3
Comm 332 Communication & the Small Group 3
EDTE 475 Secondary School English Methods 3
Courses selected from those specified for the speech teaching major 7

THEATRE ARTS

A. 39-CREDIT THEATRE ARTS TEACHING MAJOR

TheA 102 Theatrical Make-up 3
TheA 103-104 Theatre Technology I-II 4
TheA 105-106 Basics of Performance 6
TheA 150 Performance Lab 1
TheA 190 Theatre Practice I 2
TheA 201 Scene Design I 3
TheA 202 Costume Design I 3
TheA 305 Intermediate Acting 3
TheA 320 Theatre Management 2
TheA 371 Play Analysis 3
TheA 467-468 The Theatre 6
TheA 471 Directing 3

B. 23-CREDIT THEATRE ARTS TEACHING MINOR

TheA 103-104 Theatre Technology I-II 4
TheA 105-106 Basics of Performance 6
TheA 190 Theatre Practice I 2
TheA 201 Scene Design I 3
TheA 202 Costume Design I 3
TheA 320 Theatre Management 2
TheA 471 Directing 3

THEATRE ARTS-SPEECH

39-CREDIT COMPOSITE TEACHING MAJOR

Comm 101 Fundamentals of Public Speaking 2
Comm 132 Oral Interpretation 2
Comm 134 Nonverbal Communication 2
Comm 233 Interpersonal Communication 3
Comm 331 Conflict Management 3
Comm 332 Communication & the Small Group 3
Comm 431 Professional Presentation Techniques 3
TheA 103-104 Theatre Technology I-II 4
TheA 105-106 Basics of Performance 6
TheA 201 Scene Design I 3
TheA 202 Costume Design I 3
TheA 320 Theatre Management 2
TheA 471 Directing 3

College of Engineering

David E. Thompson, Dean (125 Janssen Engr. Bldg.; 208/885-6479); Howard S. Peavy, Associate Dean; Steven G. Penoncello, Interim Associate Dean.

The mission of the college is to prepare students for professional practice, admission to advanced degree programs, leadership in the profession, and lifelong learning; to promote the discovery, development, and dissemination of knowledge through excellence in research; and to contribute to the economic development of the state, region, and nation. To this end, the college provides statewide access to high quality educational programs leading to baccalaureate and advanced degrees in engineering and computer science as described below.

The Engineering Profession

Members of the engineering profession use their knowledge of mathematics and the sciences to create useful and economic devices, structures, and systems for the benefit of the human race. The engineer's talents are used in many ways: design, construction, and operation of public works and utilities systems; planning, construction, and operation of industrial processes and equipment; application of technical products; and creation of devices and systems needed for the support of all human activity, such as food production, transportation, communication, and control of the environment. Many engineers hold responsible managerial positions; others are key members of the interdisciplinary teams that solve the complex technical, economic, and social problems of the world.

The engineering profession recognizes that social, economic, political, and cultural, as well as technical considerations are involved in most of the works in which the modern engineer is engaged. A part of an engineer's education is devoted to the humanities and the social sciences to help him or her relate the technical preparation received to the world today and enhance the engineer's role as an educated, responsible citizen.

To qualify as an engineer, one usually undertakes a four-year college program leading to a Bachelor of Science (B.S.) degree in one of the major branches of engineering practice. Bachelor of Science graduates may either go directly into engineering employment or proceed to graduate study to pursue a given area of interest in depth. As the technology of engineering includes a wide range of subject matter that can be explored only to a limited extent in an undergraduate program, more and more students undertake graduate study for better preparation in a specific field before seeking employment as practicing engineers.

All states require that engineers engaged in work affecting public health and welfare be licensed or registered. This requires a qualifying examination in fundamentals of engineering, usually taken during the last year of undergraduate study, and a period of practical experience followed by a second qualifying examination in the practice of engineering. Many industries, while not legally required to use registered engineers, encourage registration as evidence of professional stature of their engineering employees.

The Computer Science Profession

Although much of the above applies to computer science, it is a profession with its own merits. Computer science is the systematic study of algorithmic processes that describe and transform information. It includes analysis, design, implementation, and application of computer software and computing systems; hardware selection; and language development and modification. Computer scientists work alongside engineers, scientists, and businessmen to provide faster and more efficient ways to calculate, record, manipulate, store, and use all kinds of information. Applications range from data base operations to sophisticated calculation and computer-aided design systems. Refer to the section on the Department of Computer Science and/or write to the department for additional information.

Equal Opportunity

The degree programs of the college and the professions they represent actively seek out women and under-represented minorities. Opportunities are unlimited and an increasing number are entering the professions.

Preparation and Admission

A statement of undergraduate and graduate admission requirements is included in part 2. A student may be admitted with less than the requirements listed, but the deficiency must be made up before he or she can progress very far in a college engineering course of study.

Students who contemplate entering the College of Engineering with advanced standing from other institutions should complete as many of the freshman and sophomore requirements listed in the curricula as possible. Calculus and the various introductory engineering courses are prerequisites to many advanced courses, and their omission may delay graduation.

Students from out-of-state institutions who wish to transfer to a degree program offered by the College of Engineering are invited to apply. Those whose cumulative GPA is below 2.8 for all previous college-level courses, including any courses taken at UI, may be admitted on approval of the College of Engineering Admissions Committee.

Admission to Classes

As a prerequisite to any upper-division course normally taken in the junior or senior year and offered by the College of Engineering, students in the College of Engineering must have completed selected courses from the required courses in chemistry, computer science, engineering, mathematics, and physics that are normally to be taken by them during their first two years and must have attained a grade of C or better in each of those courses.

Scholarships and Awards

Many scholarships and awards are available to College of Engineering students and prospective students. See "Financial Aid" in the student service section of part 2.

Courses of Study and Degrees

The College of Engineering includes the degree-granting Departments of Biological and Agricultural, Chemical, Civil, Electrical and Computer, and Mechanical Engineering, and of Computer Science. Careful attention is given to curriculum content and educational philosophy to keep all programs attuned to rapidly changing technology.

Programs in the college lead to the Bachelor of Science in eight disciplines, i.e., Bachelor of Science in Agricultural Engineering, Bachelor of Science in Biological Systems Engineering, Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Computer Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering, and Bachelor of Science in Computer Science.

All engineering B.S. degree programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

The Bachelor of Science program in computer science is accredited by the Computer Science Accreditation Commission of the Computer Science Accreditation Board (CSAC/CSAB).

The Bachelor of Science programs in engineering disciplines are designed to prepare the student either for immediate entry into the profession or for graduate study. Most of the courses taken by freshmen and sophomores are the same in all curricula. The student may postpone a final decision on a branch of study for a year or more with little, if any, consequence, thus allowing ample opportunity for professional orientation. The junior and senior years are devoted to application of basic principles in the various fields of practice.

Courses of study leading to the degrees of Master of Science (M.S.), Master of Engineering (M.Engr.), and Doctor of Philosophy (Ph.D.) are offered in agricultural, chemical, civil, electrical, and mechanical engineering. The M.S. and M.Engr. degrees are available in computer engineering, and the M.S. and Ph.D. degrees are available in computer science. The Master of Engineering in engineering management and in system engineering is also available. Through the facilities at the UI/Idaho Falls Center for Higher Education, the M.S., M.Engr., and Ph.D. degrees are available in nuclear engineering.

Faculty

The faculty is the key to the quality of the engineering program. With few exceptions, faculty members in this college hold advanced engineering degrees; more than 95 percent hold the Ph.D. degree. Recognition in such publications as *Who's Who in America, Who's Who in the West, Who's Who in Engineering,* and *American Men and Women of Science* is common.

A distinguishing feature of the faculty is a blend of academic and practical experience. Many faculty members have extensive experience in practice that they bring into the classroom. This is valuable in preserving a balance between theoretical and practical aspects of engineering.

Facilities

The facilities of the College of Engineering are among the finest in the country. Work is centered in the two-block-square engineering complex, which includes the Allen S. Janssen Engineering Classroom Building, the J. E. Buchanan, J. Hugo Johnson, and Henry F. Gauss Engineering Laboratories, and the newly completed Engineering/Physics Building. These facilities are supplemented by the agricultural engineering and isotopes laboratories at other locations on the campus. In total, more than 235,000 square feet of floor space is available for the special use of the College of Engineering. Laboratories include modern equipment for teaching and research in all areas of instruction with recent additions for computerized drafting, CAD/CAM, computerized VLSI design, and robotics. Some of the equipment is of advanced design found in only a few institutional laboratories. Students also have access to the 16 general purpose open-access computer laboratories across the campus, with over 500 PCs and 50 MACs. There are over 100 software applications available, as well as e-mail, telnet, WWW, and other network services. An assortment of Hewlett Packard minicomputers and engineering work stations, and various types of smaller computers are available within the engineering complex.

Standing and Advantages

With a tradition of excellence dating from the founding of the University of Idaho, the College of Engineering has developed engineering bachelor's degree programs on the Moscow campus that are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology as listed previously. For over 40 years, graduate programs in several disciplines have been available at off-campus sites as well. Since 1896, when it granted its first degrees, graduates of the college have spread throughout the world. The large number of firms and agencies from throughout the country that send interviewers to the campus each year seeking to hire Idaho engineering graduates attest to the reputation of the university's engineering program.

The size of the college is near the median of engineering colleges in the country. It is not so large that the importance of the student as an individual is lost; it is large enough to support the faculty and facilities needed for top quality education.

Attention is given to both undergraduate and graduate programs. New concepts and knowledge resulting from the graduate program feed into the undergraduate program to keep it up to date. Undergraduate students have an opportunity to observe graduate projects to help them ascertain their interest in graduate work so that the student is better prepared and more soundly motivated if he or she does proceed to graduate work.

Engineering Experiment Station

The function of the Engineering Experiment Station is to encourage and coordinate the College of Engineering's research and extension programs that are integral parts of the college's academic and service efforts.

The research program in engineering is conducted by the regular faculty and students of the college. There is neither a separate research facility nor a separate research staff. The College of Engineering requires that any research it undertakes have academic significance. A large part of the college's research program deals with developing new knowledge that is applicable to Idaho's economy or devising new methods or applications for using existing knowledge to the benefit of the state. Most of the funds in support of research come from sources other than legislative appropriations. These funds are the result of research contracts and grants with various local, state, and federal agencies and private industry. Information regarding research capabilities is available upon request.

Believing that education is a never-ending need of man, the College of Engineering, through the means of short courses, workshops, seminars and forums, and pertinent publications, attempts to ascertain and meet the specific continuing education needs of Idaho's graduate engineers, computer scientists, and the technical community. Staff members also endeavor to provide information to the entire population of Idaho that may contribute to the successful solving of societal problems.

Off-Campus Programs

To fulfill its charge to provide engineering education to the people of Idaho, the College of Engineering provides several degree programs off campus. Graduate degrees in all disciplines are available through the Resident Instructional Centers at Boise, Idaho Falls, and Coeur d'Alene, using a combination of resident faculty and video courses. The Engineering Outreach program uses video technology to provide graduate and advanced undergraduate course work, including some complete master's degrees, at any location. For more information, see "Resident Instructional Centers" in part four.

General Requirements for Graduation

University Requirements. See regulation J in part 3 for requirements that all students in the university must meet.

College Requirements. The civil engineering curriculum requires 129 semester credits, mechanical enginering 130, and biological systems engineering and electrical engineering 131. All others require a total of 128 semester credits.

Note: In calculating the credit total for each degree, the College of Engineering does not include credits that a student may have been required to earn in Engl 101, Math 143, and any courses taken to remove deficiencies.

Major Curricula

The curriculum for each major is listed in part 5 by department. Each curriculum provides for electives to be arranged in consultation with the student's adviser in accordance with the student's interest and consistent with current department and college policies. The electives are intended to provide flexibility in the student's program. Undesignated electives will usually be taken outside of the student's major field of study.

General Studies Program

Kurt O. Olsson, Director (112 Admin. Bldg.; 208/885-6426); Tammy Bowen-Baldwin, Freshman/Sophomore Advisor, 208/885-6307; Kristine A. Roby, Junior/Senior Advisor, 208/885-6426.

The General Studies program, in which students at any level of competence may enroll, serves students in two ways. General Studies

is elected by many entering students who wish to examine a number of possible academic and career options before selecting a major in a traditional discipline. Additionally, students may major in General Studies, developing a coherent program of study (see below) with their advisor. Students in the General Studies program may transfer to any degree program at any time if they satisfy the grade-point and curricular requirements of those programs.

Admission to the Program

New students wishing to enroll in the General Studies program may indicate their choice on the application form for admission to the university. Students currently enrolled in one of the colleges of the university may transfer to the program by applying to the director.

General Regulations

Students participating in General Studies while exploring their choice of majors have no restrictions or required courses. These students are advised to satisfy core requirements while taking classes that will move them toward a reasoned career decision. Particular attention is paid to identifying critical prerequisite courses so that students are able to enter a major on track for graduation. Students may transfer from General Studies to a new major at any time if they satisfy the prerequisite and grade-point requirements of that major. Students must have at least a 2.00 grade-point average to transfer into many of the university's colleges.

A student ineligible to be in or continue in the College of Business and Economics may take no more than 9 credits of upper-division course work in that college (except for Bus 362, Real Property Appraisal, and Bus 364, Insurance). Students graduating in General Studies may exceed the nine-credit limitation with consent of their advisor and permission of the College of Business and Economics.

Bachelor of General Studies Curriculum

The curriculum leading to the degree of Bachelor of General Studies is designed to provide maximum flexibility for undergraduates while planning their program of studies. Since the only specific subject requirements are the general university requirements, students can plan their programs to the best advantage of their particular educational objectives. This means that students must bear the major responsibility for their choice of courses. Those who plan wisely have the opportunity to obtain an excellent education. The key admonition is: plan your program carefully.

The major thrust of the B.G.S. degree program is nonspecialized education. Although a student could take his or her work in a limited number of departments, the intent of this program is to permit great latitude in the choice of subjects so that students may satisfy their particular objectives. No student may become a candidate for the B.G.S. degree who has already earned a baccalaureate degree or who is a candidate for another degree offered by the university.

Major. No major other than "general studies" will be certified on the student's diploma or official transcript. Students who wish to have a designated major should pursue a departmental baccalaureate degree (B.A., B.S., etc.). A student graduating with a Bachelor of General Studies may select a combination of courses that will be the equivalent of a major, but this will not be officially recognized by the university as a major. In such cases, the student is strongly advised to transfer to the major and graduate with a designated degree.

Minor. Students graduating with a Bachelor of General Studies may satisfy requirements for one or more minors. In these cases their transcript will reflect these minors.

Degree Requirements. In addition to the general university requirements for the baccalaureate degree (see regulation J-3), sufficient electives must be taken to total 128 credits. *A minimum of 48 credits must be earned in courses numbered 300 and above.* Not more than 40 credits in any one subject field may be counted in the 128 credits.

Suggestions to Students. Students are advised not to make a firm decision with respect to the B.G.S. degree before the end of the freshman year. During the freshman year, and probably during the sophomore year, students should consider following one of the curricula leading to a departmental baccalaureate degree, deviating from the departmental requirements only where it appears educationally advisable to do so.

It is very important that the student working toward the B.G.S. "look ahead" to see in which departments he or she wishes to accumulate the required 48 credits in upper-division courses (those numbered 300 and above). Many upper-division courses have prerequisites that must be completed during the early semesters of the student's undergraduate career. If planning is delayed, it may be that some courses will be "unavailable" because the student has not taken the prerequisites.

College of Law

John A. Miller, Dean (101 Law Bldg.; 208/885-6422); Neil E. Franklin, Associate Dean.

The College of Law was organized in 1909 and is the only school devoted to the study of law in the state of Idaho. The college is a member of the Association of American Law Schools and is approved by the Council of the Section of Legal Education and Admissions to the Bar of the American Bar Association.

Purpose of the College

The role of the College of Law is to educate students for the legal profession with its many facets and its involvement in the whole range of society. The curriculum is designed to provide instruction over three academic years in principles generally applicable in the United States. The responsibilities assumed by the professional man or woman are emphasized, as are solutions to ethical problems. The study of law is also an asset to those who wish to hold positions of leadership in government or business.

Methods of instruction are adapted to the development of each student's highest potential and vary with the professor and the course. Basic instruction is accomplished primarily by way of the case system, a study of the actual decisions of appellate courts, supplemented by selected readings that provide insight into the nature of judicial and legislative processes. Problem and simulation methods are used in advanced courses. Techniques that encourage individual initiative and develop perception and communication abilities are emphasized. In the third year, clinical training provides contact with clients. Because law changes rapidly, mere accumulation of information is subordinated to the more important ends of individual development and training in critical habits of thought.

Admission to the Bar

The College of Law is fully accredited by the American Bar Association and the Association of American Law Schools, and its degree is accepted by all state bar associations. Educational prerequisites vary among states, and the secretary of the bar examiners in the state in which the applicant intends to practice should be contacted to determine the existence of special requirements.

Suggestions for Pre-legal Study

The subject matter of pre-legal education is less important than the quality of work performed. Although the most common pre-law majors are social sciences or business options, law students are drawn from a broad range of undergraduate programs from agriculture and engineering to English and philosophy. The study of law requires logical analysis and effective written and oral communication. Any rigorous course of study that develops these skills is good preparation for law school. Beyond this, a well-rounded education is best. American government and western political philosophy are important in public law; economic and accounting concepts are basic to much business and commercial law; history, literature, philosophy, and psychology

all provide useful insights into cultural tradition and human motivation which are important to the interpretation and application of law.

A pre-law adviser is available through the Political Science Department to guide students in selecting courses within the particular college or university that will meet these objectives. The dean's office at the College of Law is also available for consultation or assistance in program planning.

Application for Admission

Applicants for admission must have a bachelor's degree from an accredited four-year college or university by the date of enrollment at the College of Law (or be approved for admission after three years of undergraduate study). Applicants must also arrange for a complete Law School Data Assembly Service (LSDAS) report, which consists of a Law School Admission Test (LSAT) score, copies of transcripts, and other relevant information.

Arrangements for taking the LSAT must be made by the individual applicant directly with the Law School Admission Council (LSAC) well in advance of the dates set for the LSAT. The dates and places for the test, application blanks, and a bulletin of information about the test may be obtained by writing directly to LSDAS, Box 2000-R, Newtown, PA 18940-0998, by calling LSAC at 215/968-1001, or on their web site at http://www.lsac.org. This information may also be obtained from the pre-law adviser of most colleges and universities.

Commercial materials on the LSAT are available at most bookstores and LSAT preparation courses may be found in many locations. Applicants are advised to study for the test ahead of time. Old LSAT scores are acceptable as long as an LSDAS Report can be assembled by the testing service. If the student is in the area, the University of Idaho Enrichment Program offers LSAT preparatory classes and can be reached at 208/885-6486 for scheduling information.

Registration with the LSDAS is required of all applicants. Instructions concerning registration for the LSDAS report and an application blank for the purpose are contained in the same bulletin that describes the LSAT. Applicants should accomplish this registration at the same time they register for the LSAT. **It is the applicant's responsibility to assure that LSDAS has all required information and that the applicant's LSDAS Report is complete for release to the College of Law.** Be advised that it may take up to six weeks for an LSDAS Report to reach the College of Law.

*While the College of Law will consider applications received at any time, all required admission credentials listed below must be received no later than **February 1** to be assured on time consideration for admission in the fall.* The College of Law will request an LSDAS Report from LSAC on receipt of an application and application fee. The college is unable to consider the application until an LSDAS Report has been received. This requires applicants to take the LSAT no later than the preceding December. However, in order to assure on time application, the October LSAT, almost a year before admission, is recommended. If the college receives any of the required information later than February 1, the application will be considered late. The college cannot be responsible for delays in the mail or at the LSDAS.

Decision on Admission

Admissions decisions are made by a three-member faculty committee chaired by the associate dean. The college receives many more applications than it can accept. Consequently, the Admissions Committee must deny admission to many who are otherwise qualified to study law. In general, offers of admission are extended to those judged to present the greatest promise for success in law school. Matters relating to character are also considered in the admissions process.

Although UGPA and LSAT scores are the most important factors used to arrive at this judgment, the committee will consider any additional information that an applicant believes is important in assessing his or her ability to perform law school work. A personal statement often provides insight into an applicant's motivation for attending law school, as well as functioning as a sample of writing ability, and is probably the most helpful additional item for most applicants. Graduate work and/or work experience may provide evidence of achievement and capabilities inadequately addressed by standard credentials. Letters of recommendation and prior written work may also be of assistance in assessing an applicant's relative promise. Letters of recommendation should be limited to three, and should address the applicant's ability to engage in critical analysis and to communicate orally and/or in writing. An applicant's cultural background may also be judged relevant, either because it suggests that an applicant will supply diversity to the student body or because it bears on the evaluation of standard credentials.

As a state-supported institution, the College of Law extends a preference to on-time applicants who are Idaho residents. It is possible to establish Idaho residency while a student. Residency determinations are made by the Undergraduate Admissions office and inquiries about residency should be directed to that office at 208/885-6326.

In recent years the median UGPA for residents has been approximately 3.22 and the median LSAT has been approximately the 60th percentile. The median figures for nonresidents are 3.30 GPA and 85th percentile LSAT.

Ordinarily, on-time applicants will be notified of our initial decision no later than April 1. For most, this decision will be either positive or negative. However, some will be placed on a "waiting list" and will be admitted thereafter if we have a sufficient number of withdrawals by previously admitted applicants. Those on the waiting list may not receive final word about admission until mid-summer. The dean's office will consult with wait-listed applicants on request and attempt to provide as much information about their status as possible.

Upon acceptance, a $200 deposit is required to secure a place in the fall entering class. This deposit will be applied to student fees upon registration. It is fully refundable until June 1. In cases of special need, the deposit may be waived.

Transfers from Other Schools

Space is limited, and only a few transfers into the second year class can be accommodated. Special standards apply, and within these standards, a degree of preference is extended to residents of Idaho. Students transferring into our program are expected to complete at least three semesters at Idaho. Students desiring to study here for a lesser period should arrange to have credits at Idaho accepted toward a degree from the law college in which they are currently enrolled. Before a transfer applicant is considered, we must have on file a final transcript of all work that will have been undertaken at other law schools by the time of transfer. We also require a letter from the dean or associate dean following the completion of all such work that states that the applicant remains in good standing and is eligible to continue without any condition or qualification. Consequently, for an applicant currently enrolled in a law school, no decision on transfer will be possible until June or later, when all grades from current work are in. If an applicant attends a summer session of a school of law, it will not be possible to process a final acceptance until the close of the summer session. If an applicant needs some guidance before results of his or her spring semester's work become available, a tentative opinion about probable admissibility can be given.

Nondegree Candidates

Students who are not degree candidates in the College of Law but are enrolled elsewhere at the UI are permitted to register for a course offered by the College of Law if the permission of the dean or associate dean of the College of Law and the instructor of the course are both granted. Such courses cannot be credited toward a law degree even if the student is later admitted to the College of Law.

Fees

See the section on "Fees and Expenses" in Part 2.

Grading System

Grades for courses taken in the College of Law shall be awarded on the basis of A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and F; provided, however, that by resolution the law faculty may designate any course, or courses, to be graded on a pass-fail basis. Any approved course work taken at any other institution will be recorded on the transcript as a "P," if the student earned a "C" or better in that course. No credit will be awarded for work done at another institution if the student earned less than a grade of "C." Up to 6 credit hours of UI graduate level courses may be taken with special permission of the associate dean. Credits will be recorded as "P" for course work in which the student earns a "B" or better.

Grade-point averages of students in the College of Law shall be computed by assigning the following numerical point values per semester hours: A = 4.00; A- = 3.67; B+ = 3.33; B = 3.00; B- = 2.67; C+ = 2.33; C = 2.00; C- = 1.67; D+ = 1.33; D = 1.00; D- = 0.67; F (or "fail" under the pass-fail basis) = 0.00. The cumulative grade-point average is the quotient of total points assigned, divided by total hours undertaken. Courses in which marks of I, W, or P (pass) have been given shall be disregarded in the computation. Courses may be repeated only with the approval of a majority of a quorum of the faculty. All course grades shall be included on the transcript and in the calculation of the grade-point average, even if courses have been repeated.

This grading system applies in determining: (a) eligibility for continuing study in the College of Law; (b) compliance with requirements for the Juris Doctor degree; and (c) class ranking within the College of Law.

Grades in most courses offered by the College of Law are awarded on the basis of performance in a single written examination conducted at the end of the semester. In courses where it is so announced, grades on written projects or classroom participation may be included.

Unless arranged in advance by the professor, students receiving an "incomplete" grade for a course must remove that grade within six weeks after the first day of classes of the following fall or spring semester. Incompletes not made up before that date automatically revert to the grade indicated by the professor as the "permanent" grade, usually an "F." The grade ultimately given will be computed in the GPA for the semester in which the class was begun.

Concurrent J.D./M.S. in Environmental Science

See the Environmental Science section of Part 5 for information on the concurrent J.D./M.S. in Environmental Science.

Additional Information

For more detailed information about the College of Law, see the College of Law Announcement.

College of Letters and Science

Kurt O. Olsson, Dean (112 Admin. Bldg.; 208/885-6426); Sandra L. Haarsager, Associate Dean; Kristine A. Roby, College Advisor, kroby@uidaho.edu.

Established in 1900, the College of Letters and Science (L&S) is the oldest division of the university. The objectives of the college are to provide a liberal and professional education in the arts and sciences, to advance knowledge through research and scholarship, and to perform service to the university at large, the state, and the nation.

Departments and Programs of Instruction

Included within L&S are the Departments of Biological Sciences, Chemistry, English, Foreign Languages and Literatures, History, Mathematics, Philosophy, Physics, Political Science and Public Affairs Research, Psychology, Sociology/Anthropology/Justice Studies, and Theatre Arts. The School of Communication, the Lionel Hampton School of Music, and the Division of Statistics also function as departments of the college. Cooperating departments from other divisions include the Departments of Art; Economics; Geography; Microbiology, Molecular Biology and Biochemistry; and Naval Science, and the Margaret Ritchie School of Family and Consumer Sciences. Other programs offering degrees through the College of L&S include American Studies, Environmental Science, General Studies, Interdisciplinary Studies, International Studies, and Latin American Studies. The departments and schools in L&S provide nearly 100 curricula and curricular options leading to baccalaureate degrees, as well as graduate study leading to master's and doctoral degrees.

Undergraduate. See departmental sections in part 5.

Graduate. The College of Graduate Studies offers work toward advanced degrees in many disciplines of the College of L&S. Currently work leading to a master's degree is available in the fields of anthropology, biological sciences, botany, chemistry, English, environmental science, French, German, history, mathematics, music, physics, political science, psychology, Spanish, statistics, theatre arts, and zoology. The degree of Doctor of Philosophy is available in botany, chemistry, history, mathematics, physics, political science, and zoology. For the specific degrees available, see the list of programs offered in part 1.

Nondegree. A nondegree program is offered in which each student's course of study is worked out to meet his or her special needs. The program is intended primarily for students who (1) do not plan to obtain degrees at the University of Idaho, (2) plan to transfer to other institutions, or (3) have objectives that are not provided for by any of the established curricula in the college.

Interdisciplinary Studies. Students who have broad educational goals that necessitate work in several disciplines or departments may present an interdisciplinary curriculum for the B.A. or B.S. degree. For details, see the program in interdisciplinary studies in part 5.

Preparatory Programs in Medicine and Dentistry. Premedical and predental programs are administered by the L&S Health Studies Committee.

Admission to the College

Students who expect to enter L&S should plan their high school electives carefully, both to lay the foundation for their general education, which will be continued in the university, and to ensure that they are adequately prepared to begin their study at the college level. Students should select subjects in English, foreign language, social sciences, natural sciences, mathematics, and fine arts that will provide a well-rounded preparation for further study. For a statement of general undergraduate and graduate admission requirements, see part 2. Graduates of four-year, accredited high schools ordinarily are eligible for admission to L&S.

Regular Enrollment in a Program of Studies

Students in L&S must enroll in regular programs unless they are attending on a part-time basis (seven-credit maximum), or they are admitted to nondegree programs. Except for the two-year program in prenursing studies, a regular program is one that leads to a degree that the college offers. However, it is not necessary to select a major curriculum until the beginning of the junior year. This permits the undecided student to take courses in a wide range of fields in order to choose a major more wisely.

Teacher Education Program

Students in L&S who are preparing for secondary-school teaching should consult the section on the College of Education in this part 4.

Laboratory of Anthropology

The Alfred W. Bowers Laboratory of Anthropology, established in 1968, serves as the research arm of the College of Letters and Science for investigations in archaeology, ethnohistory, linguistics, and physical anthropology. Major contractual research has been concentrated in historical and prehistoric archaeology for the National Park Service,

Bureau of Reclamation, and the U.S. Army Corps of Engineers, burial relocation for several Northwest American Indian tribes, and archaeological surveys for the U.S. Forest Service and the Bureau of Land Management. The laboratory serves as the main clearinghouse and repository for all northern Idaho archaeological collections and records. Much of the day-to-day work consists of providing public service information on archaeological sites and artifacts for interested citizens as well as environmental impact statements for industry and government.

Modern and well equipped facilities for the cleaning, preservation, and analysis of both historic and prehistoric artifacts are contained in the laboratory. The metal artifact cleaning facilities are among the largest and best equipped in the country. The laboratory also provides space and facilities for research associates, graduate student research, teaching and comparative collections, and a regionally oriented library.

Osteological analysis of human skeletal populations is a major concentration of the laboratory. As a matter of policy, no American Indian skeletal collections are maintained. Before any such material passes through the laboratory for analysis before reburial, the project must have the approval of the tribal authorities concerned.

General Requirements for Graduation

Each student working toward a baccalaureate degree from the college must satisfactorily complete 128 semester credits (unless a higher number is specified in the particular curriculum), including at least 36 credits in courses numbered 300 and above, the all-university requirements (see regulation J-3 in part 3), and the college and departmental requirements for the degree sought. The college requirements applicable to the B.A. and B.S. degrees are listed in part 5. The requirements for the various professional degrees (i.e., B.F.A., B.Mus., B.N.S., and B.Tech.) are listed by academic unit in part 5. The college B.A. and B.S. requirements do not apply to these professional degrees.

College Requirements for the B.A. and B.S. Degrees

Objectives. The college requirements for the B.A. and B.S. degrees are designed to ensure a broad, liberal education through the attainment of the following objectives: (1) proficiency in written and spoken English; (2) appreciation of great literature, music, and art; (3) knowledge of human development, the growth of social and economic institutions, and an understanding of the rights and responsibilities of the individual citizen; (4) perspective of American culture in the world at large; (5) sense of historical perspective; (6) acquaintance with moral, ethical, and aesthetic values; (7) familiarity with scientific thought and method; (8) ability to use and interpret basic mathematical concepts; (9) understanding of ecology; and (10) a continuing attitude of intellectual curiosity.

Requirements for the B.A. Degree

Humanities—6 credits (two courses) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

Social Sciences—3 credits (one course) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

Foreign Language—0-16 credits (zero-four courses), i.e., competence in one foreign language equivalent to that gained by the completion of four semesters of college courses (through the intermediate level). This requirement may be satisfied by the completion of either of the following options: (1) 16 credits or four high-school units in one foreign language, or (2) 12 credits in one foreign language, and one three-credit course in literature translated from the same language. The 12 credits may be satisfied by three high-school units in one foreign language.

Requirements for the B.S. Degree.

Humanities—3 credits (one course) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

Social Sciences—3 credits (one course) in addition to the minimum university-wide core requirement of 14 credits in humanities/social sciences.

Natural Sciences, Mathematics, and Statistics—6 credits (two courses) in addition to the minimum university-wide core requirement of 11 credits in natural sciences/math.

For the B.S. degree, the student may substitute the successful completion of an academic minor or area of emphasis of at least 18 credits approved by the department in which the student is majoring.

Courses satisfying the *humanities* requirement are those dealing with the arts, literature, and philosophy. Courses satisfying the *social sciences* requirement are those dealing with a person's social condition including social relations, institutions, history, and participation in an organized community. *Mathematics and statistics* requirements can be met by taking courses in the Department of Mathematics and the Division of Statistics. Likewise, the *natural science* requirements can be met by taking courses in the life sciences and the physical sciences.

Special topic, workshop, seminar, and directed study courses are generally not applicable. However, individual departments can, at their discretion, certify one of these nonregular courses as meeting Letters and Science B.A. or B.S. requirements in an appropriate category.

Progress in Satisfying These Requirements. Students who wish to graduate by the end of four years of college work should take a program that results in substantial progress toward the fulfillment of the preceding requirements by the end of the sophomore year. In particular, students seeking the B.A. degree should take courses in fulfillment of the foreign-language requirement as early as possible. If they cannot do this during the first semester, they should immediately take a course that can be used in partial fulfillment of the science-mathematics requirement.

Major Curricula

Selection of a Major. Each student should select a major curriculum no later than the beginning of the junior year. Lower-division students who have not decided on a major may remain in a "general" classification, which permits them to explore a variety of possible major fields of study.

Major Requirements. The departmental requirements are stated under the respective curricula in part 5.

College of Mines and Earth Resources

Earl H. Bennett, Dean (321 Mines Bldg.; 208/885-6195); Cheryl Tribble, Secretary of the College Faculty.

The School of Mines was established at the University of Idaho in 1917 to serve the needs of the Gem State's important mining industry. The name was changed in 1952 to the College of Mines, and "Earth Resources" was added in 1978 to reflect the growing academic diversity represented in today's Departments of Geography, Geological Sciences, and Materials, Metallurgical, Mining, and Geological Engineering. A separate state agency, the Idaho Geological Survey, is an affiliated program.

Degrees offered within the college include geography (B.S., M.S., Ph.D.); cartography (B.S.); mining engineering (B.S., M.S., Ph.D.); metallurgical engineering (B.S., M.S., Ph.D.), geological engineering (B.S., M.S.); geology (B.S., M.S., Ph.D.); and hydrology (M.S.). In addition, the College of Graduate Studies offers a Master of Arts in Teaching degree (with majors in geography and earth science) and a Master of Natural Science degree (major in earth science). The college is home to some 35 faculty who instruct and guide about 385 graduate and undergraduate students in these disciplines.

Facilities and Equipment

The college is housed in the Mines Building (built in 1960) and the state-of-the-art McClure Hall (dedicated in 1995). Both buildings contain teaching and research laboratories, classrooms, and faculty and administrative offices. Highlights in McClure include a fully equipped analytical lab with the latest equipment and a new computer teaching lab (27 PCs) and adjacent student lab (38 PCs) completed in 1998. Other fully equipped computer facilities for teaching and research in geographical information systems (GIS) and remote sensing are also housed in this building.

Materials Engineering. Students are provided with excellent facilities to study metallic, ceramic, electronic, and magnetic materials. Laboratories and apparatus are available to fabricate these materials from powders, and to observe the microstructures of these and other bulk materials using standard metallographic techniques. Both hot and cold isostatic presses are available for consolidation, as well as annealing furnaces for densification. In addition, pilot scale work is being carried out using emerging plasma technologies to prepare materials.

The elemental content of materials fabricated using such techniques can be determined using an energy dispersive X-ray fluorescence unit, and their structures can be determined using powder X-ray diffraction techniques and single crystal techniques. The internal structural details of these materials (at close to atomic scale) can be determined using a transmission electron microscope. Equipment is also available for mechanical testing, electrochemical corrosion studies, and studying electrical, magnetic, and structural properties.

Metallurgical Engineering. Equipment is available for a broad range of laboratory procedures commonly used to study extractive and physical metallurgy. Students can do bench-scale tests to crush, grind, screen, and separate minerals from ores using flotation, magnetic separation, leaching, or other techniques. Analytical equipment ranging from traditional fire assaying to induction-coupled-plasma (ICP) atomic absorption spectrometry and ion chromatography are available.

Mining Engineering. The mechanical properties of rocks are critical to mining engineers for designing surface and underground mines as safe working environments. The college's rock mechanics laboratory is equipped with a large capacity tension/compression testing machine and associated strain measuring and recording equipment.

Of equal importance to rock mechanics is basic mine design. Computer laboratories using high speed work stations and "expert" software systems provide our mining engineers with powerful tools. These systems permit the engineer to design the most safe, economical, and operationally efficient plans for mine entry, ore removal, ventilation, and transportation.

Geological Engineering. The geological engineering program provides students with a thorough educational experience in applied geology, the engineering sciences, and in the integration of geologic concepts into engineering evaluation and design. The student can specialize in geological engineering as applied to mineral exploration, hydrology, or energy resources. Sophisticated equipment for strain testing and determining other engineering properties is available in the college's rock mechanics laboratory.

Geological Sciences. Extensive laboratories are maintained for work in all of the basic earth science courses, with large study collections of fossils, rocks, minerals, crystal models, ore suites, thin sections, polished sections, and topographic and geologic maps.

Equipment used in advanced courses includes rock sawing and polishing facilities, binocular microscopes, reflection and polarizing microscopes, photomicrographic apparatus, x-ray diffraction and fluorescent equipment, and an atomic absorption spectrophotometer. Both scanning and transmission electron microscopes are available to advanced students. Other equipment includes computers, proton magnetometers, resistivity survey equipment, a 12-channel seismograph, a gravity meter, an EDM survey unit, soil drilling and sample kits, water-level recorders, and other geophysical and hydrological equipment.

Research laboratories are equipped for work in applied geochemistry, economic geology, paleontology, photogeologic analysis, remote sensing, and hydrology. Facilities for research in hydrology are also available in other divisions of the university.

Through the Glaciological and Arctic Sciences Institute, cooperative facilities for field training and research in British Columbia and Alaska are available in the disciplines of mining and exploration geology, geophysics, terrestrial photogrammetry, field surveys and mappings, geomorphology, and glaciology.

Geography. The department's main laboratories are the surrounding regions, including the Palouse, the Inland Empire, and the Pacific Northwest. Three separate laboratories are maintained in the department for teaching and research in cartography, geographic information systems (GIS), and remote sensing. The GIS laboratory has ARC-INFO running on both HP work stations and IBM-compatible PCs. ERDAS, a digital image analysis package, is available on 10 PCs in the remote sensing laboratory. Additional PC-based and mainframe computing are provided through the university's Computer Services facilities. Another resource is the approximately 124,000 maps, numerous atlases, 40,000 aerial photographs, and a growing collection of digital data files in the University Library's collection.

Cart-O-Graphics, the Department of Geography's graphics laboratory, offers design, drafting, and reproduction services for maps and other graphics to illustrate research reports and other publications while providing work experience for students. Although this laboratory primarily serves the university's needs, it also serves other agencies in the state and region.

Scholarship and Loan Funds

Students interested in scholarships, and who have been admitted to UI with a declared major in one of the College of Mines and Earth Resources' programs, should refer to the "Financial Aid" section in part 2 of this catalog. Individual scholarships are awarded each year totalling approximately half a million dollars. Details on specific requirements to apply for one of these awards can be obtained by writing to: Dean, College of Mines and Earth Resources, PO Box 443025, University of Idaho, Moscow, ID 83844-3025.

Idaho Geological Survey

Earl H. Bennett, Director (321 Mines Bldg.; 208/885-6195).

Established in 1919, the Idaho Geological Survey is the lead state agency for collecting, interpreting, and disseminating all scientific information on the geology and mineral resources of Idaho. In addition to its main office at the University of Idaho's Moscow campus, the Survey has branch offices in Boise at Boise State University and in Pocatello at Idaho State University. A staff of geologists conducts applied research with a strong emphasis on producing geologic maps and providing technical and general information to the public.

Cooperative projects between the survey, state universities, and other academic, state, and federal institutions, including the U.S. Geological Survey, enhance research productivity and educational research. At the Moscow office, the Survey provides a sales service for publications and maps and maintains reference collections of statewide research. The Survey directs its activities at the broad interests of the state's citizens, teachers and students of earth science, the mineral industry, land developers, land-use planners, scientific researchers, and city, county, state, and federal agencies.

Glaciological and Arctic Sciences Institute

Maynard M. Miller, Director (318 Mines Bldg.; 208/885-6382).

The institute was established at the university in 1975 by the Board of Regents to promote field involvement learning and research participation of undergraduate and graduate students, as well as cooperative field research with senior scientists in the arctic and mountain geosciences and allied environmental field sciences. Both formal and directed study field courses are given on the Juneau Icefield on the Alaska-B.C.-Yukon border, operating out of a series of field stations provided by the Foundation for Glacier and Environmental Research at the Pacific Science Center, Seattle, Washington. Areas

of interest are field and exploration geology, exploration geophysics, glaciology, Pleistocene stratigraphy, glacial and periglacial geomorphology, arctic geobotany, remote sensing, and allied areas of atmospheric sciences and survey and mapping. The summer field session runs for eight consecutive weeks during July and August. Upwards of 50 students participate, including undergraduate and graduate students, and a select number of high ability high school junior and senior advance placements.

General Requirements and Undergraduate Curricula

University Requirements. See regulation J in part 3 for the all-university requirements for graduation.

Electives. A list of acceptable electives may be consulted in the office of each head of department and adviser in the college. Electives must be approved by the head of department or the adviser involved.

Major Curricula. As specified in part 5, the programs of study in this college require 128 to 136 credits. The curricula include the departmental and general requirements as set forth above.

College of Natural Resources

Charles R. Hatch, Dean (202 Forestry, Wildlife and Range Sciences Bldg.; 208/885-2397; Alton G. Campbell, Associate Dean.

Professional education leading to a degree in forestry began at the University of Idaho in 1909. To the initial curriculum in forest resources have been added those in forest products (1914), rangeland ecology and management (formerly range resources) (1917), wildlife resources (1942), fishery resources (1951), and resource recreation and tourism (formerly wildland recreation management) (1974).

The academic objective of the college is to provide its students with opportunities to become better prepared for lives of responsibility and fulfillment and to acquire competence for entry into professional careers in natural resource science and management. Each of the curricula offered by the college acquaints the student with the physical, biological, and social sciences and with the humanities, thus establishing a basis of general education and preparing the student for the scientific-professional courses addressing the use of forest and range lands and related resources. In addition to the most modern technical and academic classroom instruction, the college prides itself in "hands-on" training taking advantage of its outstanding field facilities and its emphasis on communications and student activities to enhance leadership potential.

Advantages of Location

The university is ideally located for preparing students for the renewable natural resources professions. Forest and range lands comprise 90 percent of the state's area. Forested areas include many types from the ponderosa pine in southern Idaho to the mixed coniferous and famous white pine of northern Idaho. Range lands vary from spring-fall and winter ranges in the sagebrush-grass and bunchgrass zones to summer ranges in several of the forested zones. Within the forest and range lands are hundreds of lakes and streams and extensive wilderness areas that provide habitat for fish and wildlife and opportunities for wildland recreation.

The values derived from these resources include wood products of all types; cattle and sheep in great numbers; abundant wildlife of many species; world renowned game fish; water for domestic use, power, and irrigation; and recreational activities. These natural study areas and resources are available to the student in preparing for his or her profession.

Facilities

A modern three-story, 90,000-square-foot building, the Forestry, Wildlife and Range Sciences Building incorporates classrooms, laboratories, scientific equipment, plant and animal collections, computer access, and other support functions into an ideal environment for natural resources education and research.

A university experimental forest includes 7,200 acres of forest land located about 25 miles from the campus and is managed by the college as a working forest for demonstration, research, and education. The forest properties include a 200-acre recreation area, a 33-acre privately owned nature preserve, and two smaller tracts closer to Moscow that serve as outdoor classrooms. The Frank Pitkin Forest Nursery site includes 40 acres and three greenhouses that produce 700,000 seedlings annually for student training and research purposes. On the university campus, the Shattuck Arboretum, with over 60 species of trees, provides an outdoor classroom for studies in dendrology. Other field facilities include the McCall Field Campus located on Payette Lake in the mountains of west-central Idaho, the Clark Fork Field Campus in northern Idaho, the Taylor Ranch Wilderness Field Station in the heart of the Frank Church River-of-No-Return Wilderness, and the Lee A. Sharp Range Experimental Area in southern Idaho. In addition, Idaho's 37 million acres of public forest and range lands constitute a vast natural laboratory for students in all of the college's curricula.

To take advantage of these facilities and implement "hands-on" training, the college employs student logging, surveying, planting, and controlled burning crews.

Standing of the College

To assure high professional standards several curricula in the college are periodically evaluated and rated as accredited or not accredited. Forest resources curricula at UI have been accredited since the Society of American Foresters first began accreditation in 1935. Similarly, in 1985 the rangeland ecology and management curriculum became one of the first in the nation to be accredited by the Society for Range Management. The curriculum of the Department of Resource Recreation and Tourism is accredited by the National Recreation and Parks Association. The curriculum in forest products is accredited by the Society of American Foresters and the Society of Wood Science and Technology.

Departments

The college has five departments: Fish and Wildlife Resources, Forest Products, Forest Resources, Rangeland Ecology and Management, and Resource Recreation and Tourism. Although these departments are separate administrative entities, they share a common philosophy: integrated resource management. Many of the faculty members hold joint appointments in more than one department; student programs include courses in more than one department; and the teaching, research, and service missions of all the departments are integrated and coordinated at the college level. This integration is enhanced by the Forest, Wildlife and Range Experiment Station, described below.

Degrees

Curricula leading to the following degrees are offered by the college: Bachelor of Science in Fishery Resources (B.S.Fish.Res.) with emphases in management and aquaculture; Bachelor of Science in Forest Products (B.S.For.Prod.) with options in forest products business management, timber harvesting, pulp and paper technology, and wood construction and design; Bachelor of Science in Forest Resources (B.S.For.Res.) with options in forest ecosystem management, administration, and science; Bachelor of Science in Natural Resources Ecology and Conservation Biology (B.S.Nat.Res.Ecol.-Cons.Biol.) with options in natural resources ecology and conservation biology; Bachelor of Science in Rangeland Ecology and Management (B.S.Rangeland Ecol.-Mgt.) with options in rangeland ecology, environmental assessment, and rangeland management; Bachelor of Science in Range Livestock Management (B.S.R.L.M.) in cooperation with the College of Agriculture; Bachelor of Science in Resource Recreation and Tourism (B.S.Res.Rc.); and Bachelor of Science in Wildlife Resources (B.S.Wildl.Res.); Master of Science (thesis and nonthesis options); Master of Natural Resources; and Doctor of Philosophy in forestry, wildlife and range sciences, with

dissertation topics in any of the five departments. Academic minors offered include forest products, forest resources, natural resource communication, outdoor recreation leadership, rangeland ecology and management, tourism and leisure enterprises, and wilderness and nature conservation.

Admission Requirements

General. For a statement of undergraduate and graduate admission requirements, see part 2.

Transfer Students. Students who propose to complete a portion of their undergraduate studies at a junior college, or elsewhere, before entering UI, should follow as closely as possible one of the curricula for the first two years set forth in part 5. A student whose program does not closely approximate one of these will not be able to graduate in four years. Total time to graduation will also be extended if wildland field ecology is not completed by the end of the sophomore year. Transfer to UI before the end of the sophomore year is usually to the student's advantage. Correspondence with the dean of the college should be initiated at least three months before the date on which the student plans to enroll.

Undergraduate Program

The undergraduate curricula are designed to provide both a general and a professional education. The objective in the first two years is to provide students with a good foundation in the biological, physical, and social sciences and in writing and speaking skills. The basic philosophy of the college is to educate according to the principles of integrated natural resource management while providing specialization in the student's major area of interest. Because of the emphasis placed on the integrated approach, all curricula in the college, except two options in forest products, have incorporated a common 11-credit set of core courses as follows: Natural Resources Ecology, Society and Natural Resources, Wildland Field Ecology, and Interdisciplinary Natural Resources Planning.

The curricula and options in each department offer as many courses in common with those in other departments as possible, while ensuring that specific professional education requirements are met. Flexibility and individuality in each student's program are provided by curriculum choice, by options within curricula, and by elective credits. Provision is also made for advanced training leading to a military commission.

A variety of scholarships are available to undergraduate students based on need and merit.

Graduate Program

Programs leading to advanced degrees are offered in each of the fields represented by the undergraduate curricula of the college and in natural resources. Both the master's and the doctor's degree, with emphasis on conducting a research project and preparing a thesis or dissertation, are available. A nonthesis master's degree may also be obtained in each department.

An interdisciplinary Master of Natural Resources degree focused on management and administration is also available.

Excellent facilities and opportunities are available for graduate study and research in the subject-matter areas. Research in the college is organized through the Idaho Forest, Wildlife and Range Experiment Station. Research is also supported by the Idaho Cooperative Fish and Wildlife Research Unit, the Cooperative Park Studies Unit, the Wilderness Research Center, and by various state, federal, and private organizations.

Assistantships and fellowships are available to assist highly qualified students in their graduate programs.

More complete information on graduate studies may be obtained by writing the dean of the College of Graduate Studies. Specific information on specializations available and projects under way may be obtained by writing the College of Natural Resources.

Requirements for Graduation

University Requirements. See regulation J in part 3 for general university requirements for degrees.

College Requirements. Credits for the baccalaureate degree vary from 128 to 132 semester hours, depending on the option selected. A minimum cumulative grade-point average of 2.00 in all courses taken in this college is required for graduation. Courses in the college numbered above 299 are not open to any undergraduate student who is on academic probation.

The college may permit substitutions or grant waivers of specified requirements. Thus, for a student with special aptitudes or interests, a program can be devised that will provide a foundation for advanced study or research or meet other acceptable and well-defined career objectives.

Summer Field Course, Internship, and Employment Requirements. Students in all curricula except the pulp and paper and wood construction and design options of forest products, are required to complete the 2-credit Wildland Field Ecology II course during the two-week period immediately following the close of spring semester in mid-May. They should finish this requirement before beginning the professional course work of their upper-division programs. Students in some curricula have an internship or summer work experience requirement. Specific information is contained in the respective departmental sections of this catalog.

Idaho Forest, Wildlife and Range Experiment Station

All members of the college faculty are on the staff of the experiment station. Other members of the station staff include full-time research associates and technicians, as well as graduate-student appointees.

The program of the experiment station is closely connected with the graduate training program of the college. Many of the graduate students enrolled in the college are on assistantships associated with station projects.

The station staff conducts research on a wide variety of renewable natural resource management problems in the areas of forestry, forest products, range, resource-based recreation, resource-based tourism, wildlife, and fisheries. Several projects are interdisciplinary. Funds for the station are provided by the university, by some departments of the state of Idaho, and by grants from federal, other state, and private sources. Currently a majority of these funds comes from non-university sources. More information on station activities may be obtained by writing to the associate director, Idaho Forest, Wildlife and Range Experiment Station, College of Natural Resources.

University Honors Program

Stephan P. Flores, Director (315 Idaho Commons; phone 208/885-6147; http://www.uidaho.edu/honors_program); Anna Banks, Associate Director; Cheryl Wheaton, Program Adviser.

The University Honors program is open to students from all undergraduate colleges and majors and serves a variety of student needs and interests. The program offers a diverse and rich curriculum, designed to enhance the educational experience of honors students at the University of Idaho. The great majority of students are able to participate in the program without adding to the total number of credits needed for graduation.

Honors students receive many opportunities to develop their initiative and their abilities to think critically and creatively, particularly through substantial reading, writing, and discussion. Most honors classes are small, and honors students thus benefit from close intellectual contact with their instructors and fellow students. The program director, associate director, and program adviser act as supplemental academic advisers to all students who qualify for honors study.

As part of a dynamic, broad based education, members are encouraged to participate in either domestic or international exchange

programs. Honors advisers work with students individually to determine appropriate credit within the honors curriculum.

Qualified students may take honors courses even if they decide not to work for a certificate. Honors courses are designated with an "H" on the transcript to indicate that the course work is of a special nature. Students who receive the "Honors Core Award" and the "University Honors Program Certificate" shall also have these distinctions noted on their official transcripts.

To be considered a member in good standing, a student must be registered at the University of Idaho, average one honors course every third semester, and maintain a minimum 3.00 cumulative GPA.

Admission

Incoming freshmen are invited to participate in the program on the basis of their high school record and standardized test scores (ACT or SAT). Admission is selective. Students receiving at least a 28 ACT composite score OR a 1250 SAT combined verbal and math score OR a 3.7 high school grade-point average are invited to apply. Students who do not meet the standardized test or GPA criteria can write the honors director explaining their interest in the program and their reasons for seeking admission. In these cases, in addition to required written responses, two former teachers must send letters of recommendation to the director. Students who demonstrate superior performance during their first semester at UI (achieving a minimum 3.5 GPA) may also apply for admission at the end of that semester. Transfer students are considered for admission on a case-by-case basis; students in good standing in an honors program at their previous school are automatically considered for admission. Their transcripts will be evaluated and appropriate credit given toward the honors certificate (see below).

University Honors Core Award

Students who complete 19 credits in honors courses—comprised of at least 16 credits of required lower-division honors courses in specified areas and three additional honors credits—with a cumulative grade-point average of 3.00 or above in those courses, will earn the "University Honors Core Award."

University Honors Program Certificate

Students who complete 29 credits in honors course work in specified areas, or the equivalent, with a cumulative grade-point average of 3.00 or above in those courses, will earn the "University Honors Program Certificate." Depending on which courses students select, 16 to 20 credits out of the 29 required for an honors certificate also satisfy the general university core requirements that all students must complete to graduate.

Cooperative Programs

The university participates in a number of cooperative arrangements in the state and region to extend resources and take advantage of special facilities.

Washington State University

Located only eight miles apart, the University of Idaho and Washington State University, in order to take advantage of unique strengths of each institution, have for some time operated a cooperative graduate and undergraduate course program. Courses available on either campus are identified in departmental listings, and offerings are listed in the Time Schedule. In addition, the two schools cooperate in programs in medicine, veterinary medicine, and food science and technology.

Medical Education (WWAMI Program)

Michael B. Laskowski, Director, WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Medical Education Program (304 Student Health Services Bldg. 83844-4207; phone 208/885-6696; e-mail brendah@uidaho.edu). Faculty: Gregory A. Bohach, Mark E. DeSantis, Victor P. Eroschenko, Fredy E. Martinez, Thomas A. McKean, Scott A. Minnich, Philip J. Mohan, Chris Williams.

The following medical doctors serve as affiliate clinical professors (preceptors) of medical science: Malini Ariyawansa, Eugene M. Baldeck, Janice Boughton, Lennis Boyer, Patricia Brady, John B. Brown, E. Wayne Day, Stacey R. Dean, Richard B. Donati, Richard J. Eggleston, Richard A. Emtman, Stamey English, Timothy Flock, H. Graeme French, Alvin L. Frostad, Catherine M. Gorchels, John Grauke, Bruce L. Ham, Lawrence Hammond, John Harris, Cameron D. Hinman, Bonnie L. Houff, Richard Howe, Martha K. Hunt, Jay A. Hunter, Charles Jacobson, David M. Kendrick, Marvin Kym, Wenzel A. Leff, Joyce Majure, Fredy E. Martinez, Barbara Martyn, Dan McIntosh, Marsha McKay, Homa S. Memon, Dona Merrell, Margaret Miller, C. Michael Murphy, Steve Ozeran, Lloyd E. Perino, Dennis L. Peterson, Michael T. Rooney, Wayne Ruby, David Rych, Daniel Schmidt, David D. Shupe, Dennis Simpson, Francis K. Spain, David A. Spencer, David N. Spencer, John R. Stoianoff, Robert M. Ting, Robert W. Tulin, Scott Tyler, Malcolm Winter.

WWAMI is a cooperative medical education program designed to enhance the training capability of the University of Washington School of Medicine (UWSM) by utilizing the facilities of Washington State University (WSU), University of Alaska, Montana State University, and the University of Idaho (UI). The WWAMI program utilizes the physicians' expertise in the states by providing clinical clerkships in the four-state area via a network of 23 community training units for third- and fourth-year medical students. The WWAMI program at UI offers first-year medical students an ideal opportunity to study basic medical courses. Because of the small class size, there is a splendid opportunity to interact closely with the faculty.

The WWAMI program allows access to medical education for Idaho residents by providing positions at UWSM that are reserved exclusively for Idaho residents. Beginning in 1994, 16 first-year students are admitted annually.

The WWAMI program was developed in Idaho to train Idaho residents in medical studies, to address the need for more primary care physicians practicing in rural areas, to extend the resources and facilities of an excellent medical school into Idaho, to improve the quality of patient care, and to minimize the cost of medical education by the use of existing facilities.

Eligibility for consideration as a WWAMI medical student requires certification as an Idaho resident. UI's Undergraduate Admissions Office is responsible for residency certification.

Students interested in WWAMI apply directly to UWSM. Idaho residents take their first year of medical studies at UI. First-year courses are offered conjointly by UI and WSU in parallel with courses at UWSM. All participating faculty at UI and WSU are subject to the approval of UWSM and are eminently qualified scientists and scholars.

Many of the physicians in the Moscow-Pullman-Lewiston area are involved in the preceptorship program in which the students work with local physicians and observe their practice in the office and at the hospital.

Since 1972, community clinical units in Boise and Pocatello have been training upper-division medical students in the areas of obstetrics and gynecology, pediatrics, and family medicine. A UWSM clerkship in internal medicine is also offered through the V.A. Hospital in Boise.

Special facilities are maintained for the medical students, including individual study carrels, videotapes, films, and other resource materials in a Curriculum Support Center.

Participants in the WWAMI program are matriculated students of the University of Washington Medical School. Upon completion of their studies, they receive the M.D. degree. Following graduation, a postgraduate (internship/residency) training period of three to five years is considered the normal pathway to private practice. Medical students may also be approved for graduate studies at UWSM leading to the M.S. or Ph.D. degree. The M.D.-Ph.D. curriculum usually requires a minimum of six years of study.

Veterinary Medical Education (WOI)

The University of Idaho cooperates with Washington State University and Oregon State University in a program of veterinary medical

education, research, and service. When accepted in the WOI program, students from Idaho take the first three years and most of their fourth year of professional training in veterinary medicine at Washington State University. In the fourth year of the program, students also receive part of their training at the UI Caine Veterinary Teaching Center at Caldwell, Idaho, where they can specialize in food animal production medicine. Cooperative graduate programs leading to M.S. and Ph.D. degrees are also available. Idaho students seeking to enter the professional program must complete a Washington State University Uniform Undergraduate Application Form as well as a WOI Program application. Both may be obtained from and returned to the Office of Student Services, College of Veterinary Medicine, Washington State University, Pullman, Washington 99164-7012. In addition, Idaho applicants must secure certification of Idaho residency status by completing and submitting the appropriate residency certification forms available through the University of Idaho Undergraduate Admissions Office.

AWU Program

The university is a member of Associated Western Universities, which is a cooperative venture of certain institutions to make use of national laboratories located in the west. Financial support is available from the U.S. Department of Energy for graduate students and faculty to spend periods of time, up to one year, pursuing research projects at a number of these laboratories.

Interuniversity Program in Public Administration

Florence A. Heffron, Department of Political Science and Public Affairs Research (205 Admin. Bldg.; 208/885-6120).

The University of Idaho, with Idaho State University and Boise State University, offers a cooperative graduate program leading to the M.P.A. degree to provide present and prospective public administrators with a professional education and to prepare them to understand and adjust to a changing and challenging environment. Courses in core areas and in optional areas of emphasis, such as general public administration, natural resources administration, public works administration, and public finance, management, and budgeting, may be taken at any of the participating institutions without restriction. For further information, consult the Department of Political Science and Public Affairs Research.

Continuing Education

Continuing education programs at UI are divided into several classifications, each separately administered: credit courses, independent study, video outreach, noncredit classes, and workshops, shortcourses, and conferences. Each college is responsible for the development of continuing education programs based on the needs that are identified.

Credit Courses. These courses offer University of Idaho credit and are available throughout the state within the limitations indicated above. Usually a minimum of 13 students is required to offer a course, and more may be needed if instructor travel is required. In northern Idaho, courses are more commonly taught by members of the resident faculty commuting from the Moscow campus. In locations distant from the home campus, local instructors who are fully qualified may be employed subject to approval of the respective college in which the course is offered.

Generally, no single catalog of continuing education courses is available before the beginning of a semester. Instead, it is simply noted that nearly any course in the university catalog may be offered provided that an adequate number of students, a qualified instructor, and appropriate facilities are available. The schedule of courses in any geographic area is developed near the beginning of each semester and summer session. Each college is responsible for identifying and developing the courses needed, registration of students, and the administration of these programs. Individuals interested in taking courses for credit should directly contact the respective college to determine the courses available in their geographic area.

Admission procedures for enrolling in continuing education courses are streamlined. Generally, it is possible to register for a course at the time of the initial class session. In some cases to guarantee in advance the offering of a course, advance registration may be requested. Standards for admission to these courses are usually the same as for admission to credit courses on campus. Students in residence must have approval of their college before enrolling in additional credit courses.

Independent Study in Idaho. Many UI courses are also offered through the Independent Study in Idaho Office, located on the UI campus. While courses are offered through correspondence, some are also available to be taken via the Internet. Each course parallels its campus counterpart in content and credits and may be started at any time, with one year allowed for completion. Most institutions limit the amount of independent or correspondence study course work applicable toward a degree. For UI limitations, see regulation J-5 in part 3. A student currently enrolled at an institution of higher learning should receive written permission from his or her dean and adviser before registering for an independent study course. Independent or correspondence study grades are not computed in the student's grade-point average at UI.

To receive a catalog that contains further information on policies/procedures, registration, and a complete listing of college, high school, and noncredit courses, call Independent Study in Idaho at 208/885-6641 or toll free at 877/464-3246, or e-mail a request to indepst@uidaho.edu. You may also write or stop by their office in the North Campus Center. Full information is also listed on the Internet at www.its.uidaho.edu/indep-study.

Community Enrichment Program

Noncredit. The Community Enrichment Program office develops and administers the noncredit courses for the UI campus, Moscow, and the surrounding communities. During the fall, spring, and summer terms, over 100 classes are offered per semester with enrollments each year of over 6,000 participants, including children, youth, and adults. The program consists of classes in the arts, dance, music, recreation and hobbies, languages, health and fitness, foods and cooking, humanities, self-improvement, nature and the environment, computers, and career development. Programs are developed with consideration given to the needs and desires of the general public, as well as to the economic times. Each class and instructor is independent in content, teaching style, duration, and fees; however, all have the common bond of extending the opportunities and resources of the university to the surrounding area. Classes are held both on campus and in the business community. These evening and weekend classes are scheduled to complement the working person's schedule.

For a catalog, call the Community Enrichment Program at 208/885-6486 or e-mail enrprog@uidaho.edu.

Life on Wheels RV Conference. This unique program, located on the UI campus, offers present and prospective RVers opportunities to learn directly from experts about the vehicles and the RV lifestyle so they can enjoy more fully this important means of recreation and travel. The conference features over 100 different classes of interest to RVers. More information is available from the Enrichment Program or by visiting the web site at www.uidaho.edu/cep/low.htm.

Elderhostel. Each summer UI offers one Elderhostel week in Moscow, where Elderhostelers combine educational classes and recreation. Inspired by youth hostels and folk schools of Europe and guided by the needs of older citizens for intellectual stimulation and physical adventure, Elderhostel is for elder citizens on the move—not just in terms of travel, but in the sense of reaching out to new experiences. Elderhostel is based on the belief that retirement does not have to mean withdrawal, but rather that one's later years are an opportunity to enjoy new experiences.

Elderhostel programs are available at over 1,000 colleges, universities, independent schools, and other educational institutions in the U.S. and abroad. Those 55 and over are eligible for this program, which costs approximately $395 per week for classes, room, board, field trips, and entertainment.

For a catalog of schools and classes, write: Elderhostel, 75 Federal Street, Third Floor, Boston, MA 02110-1941 or call 877/426-8056. For more information about UI Elderhostel, call the Community Enrichment Program (208/885-6486).

Resident Instruction Centers

U of I Boise Center

Peggy J. Pletcher, Interim Director (800 Park Blvd., Suite 200, Boise, Idaho 83712; 208/334-2999).

The U of I Boise Center was established to serve certification and graduate program needs for persons involved in elementary, secondary, and higher education, and engineering within Boise and the adjacent areas. Certification programs are available in adult, counselor, and technology education, educational administration, and special education administration.

Graduate programs in education include the master's and doctorate with an emphasis on professional-technical education, educational administration, and adult education. Sixth year professional programs may be completed in educational administration, special education, school psychology, and professional-technical education. Graduate programs in counseling include a master's degree with an emphasis in rehabilitation counseling and a specialist program in school psychology.

The center also houses the College of Engineering—Boise. The Boise Center offers outstanding graduate engineering instruction, research, continuing education, and outreach services for individuals and businesses in the Treasure Valley. The focus of educational activities is on innovative master's and doctoral programs uniquely suited for the engineer in industry or full-time students. Externally funded research is solicited from both government and industry sources, with an emphasis on application of advanced design and manufacturing processes. Thesis topics and projects for degree requirements can be tied to ongoing industry activity. Short courses in specialized areas are provided to help practicing engineers gain additional skills and stay professionally current. The following degree programs are available using a combination of resident faculty and video courses: Agricultural, Biological Systems, Civil, Computer, Electrical, and Mechanical Engineering (M.Engr., M.S., Ph.D.) and Engineering Management (M.Engr.).

Persons representing a variety of University of Idaho programs are housed in the center. They include College of Agriculture communication specialists, an agricultural education supervisor, a human nutrition specialist, a family development specialist, a pesticide specialist, the college's regional office for off-campus research and cooperative extension programs, the regional development director for Vandal Boosters, the director of development for southern Idaho, a media relations specialist, the associate director of New Student Services, the project coordinator for CDHD, the special assistant to the president's office, the statewide staff development coordinator for Adult Basic Education, the director of the Quality Schools Consortium, a professional staff development program for school administrators, the Idaho Administrators' Assistance Center, the director of development for the College of Law, and the statewide coordinator for Cooperative Education.

U of I Coeur d'Alene Resident Instruction Center

Jack Dawson, Director (925 W. Garden Ave., Coeur d'Alene, Idaho 83814; phone 208/667-2588, FAX 208/664-1272; http://www.uicda.uidaho.edu, cdactr@uidaho.edu).

The University of Idaho Coeur d'Alene Resident Instruction Center was created to bring UI programs to the people of northern Idaho. With its cooperative relationships with other state of Idaho institutions as well as those in eastern Washington, students can finish various degrees without leaving the Coeur d'Alene area.

The *College of Education* programs include bachelor degrees in elementary, physical, and special education; graduate degrees in education, educational administration, counseling and human services, professional-technical and adult education, and two education specialist degrees. Up to date technology is demonstrated in the New Century Classroom and showcases the latest technology, curricula, and pedagogy. The *Colleges of Engineering* and *Letters and Science* have emerging course work in engineering and natural and social science.

Through its degree programs, technology, and research centers, and its collaborative philosophy, the center continues to respond to the needs of the people of northern Idaho.

University of Idaho at Idaho Falls

H. Bradley Eldredge, Acting Director (1776 Science Ctr. Dr., Idaho Falls, Idaho 83402; 208/535-7960).

The University of Idaho, in partnership with Idaho State University, operates a branch campus at University Place in Idaho Falls serving over 2,800 undergraduate and graduate students in southeast Idaho. The campus is ideally located adjacent to the Idaho National Engineering and Environmental Laboratory (INEEL), and on the banks of the Snake River. Yellowstone and Teton National Parks, pristine forests and wilderness areas, and world-class recreational activities are located nearby.

Students may enroll in over 500 courses each semester and may complete degrees in: **undergraduate**—agribusiness, computer science, computer engineering, environmental science, plant science, industrial technology, general studies; **graduate**—adult education, applied mathematics, chemical engineering, chemistry, civil engineering, computer science, computer engineering, electrical engineering, engineering management, environmental science, hydrology, industrial safety, interdisciplinary studies, mechanical engineering, metallurgy, systems engineering, rehabilitation counseling, mining engineering.

Classes are offered by resident and affiliate faculty, and through interactive video and videotape. The campus is home to the College of Agriculture Idaho Falls Research and Extension Center, the Idaho Water Resources Research Institute (IWRRI), and the Science Mechanics Materials (SiMM) Laboratory.

Engineering Outreach Program

Barry D. Willis, Associate Dean for Outreach, College of Engineering (40 Janssen Engr. Bldg. 83844-1014; phone 208/885-6373; e-mail outreach@uidaho.edu).

The University of Idaho's Engineering Outreach program delivers course work to students at a distance using a variety of media resources: videotape, videoconferencing, electronic mail, the World Wide Web, and print materials. This program provides over 90 continually updated courses in 12 graduate programs to more than 400 students worldwide each semester.

Accreditation. UI is a member of the National Association of State Universities and Land-Grant Colleges and the National Commission on Accrediting. It is accredited by the Northwest Association of Schools and Colleges. The College of Engineering undergraduate programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering Technology (EAC/ABET). The computer science undergraduate program is accredited by the Computer Science Accreditation Commission of the Computing Sciences Accreditation Board (CSAC/CSAB).

Affiliations. Engineering Outreach is a charter member of the National Technological University (NTU) and has also been selected by the Defense Activity for Non-Traditional Education Support (DANTES) as a graduate program that meets the needs of the military student. Engineering Outreach is also a member of the Association for Media-based Continuing Education for Engineers (AMCEE), a nonprofit consortium of 32 engineering universities who have collaborated to develop a wide variety of quality video-based continuing education programs for engineers, scientists, and technicians.

Engineering Outreach Degree Programs. Engineering Outreach courses carry regular UI credit and may be used toward a degree program at UI or transferred to other institutions accepting credit from

UI. Degrees offered through Engineering Outreach include: biological and agricultural engineering (M.S., M.Engr.), civil engineering (M.S., M.Engr.), computer engineering (M.S., M.Engr.), computer science (M.S., Ph.D.), electrical engineering (M.S., M.Engr., Ph.D.), engineering management (M.Engr.), geological engineering (M.S., M.Engr.), mathematics (M.A.T.), mechanical engineering (M.Engr.), metallurgical engineering (M.S.), mining engineering (M.S.), and psychology with an emphasis in human factors (M.S.). The degree earned upon completion of program requirements is the same degree earned by on-campus students, and students will receive the same diplomas that on-campus students receive.

Course and Program Delivery

Six weeks before the start of a new semester, Engineering Outreach produces the Engineering Outreach *Semester Course Offerings Catalog*. The catalog lists courses for the upcoming semester, textbook and software information, and Engineering Outreach semester deadlines. All courses are professionally videotaped in a studio classroom setting at UI. Some courses will be taped during the current semester, and others were taped in a previous semester.

Shipping Information/Returning Tapes. Videotapes are shipped weekly throughout the semester. UI pays the cost of shipping to the student; **return costs are the responsibility of the student** (the special Library Rate or 4th class mail is acceptable). In addition to registration fees, international students pay Federal Express shipping charges, including duties and taxes.

Classes are not self-paced; students are expected to maintain normal progress in the class by staying no more than two weeks behind the on-campus schedule. Tapes should be returned two weeks after they have been received as Engineering Outreach relies on the return of videotapes to continue course delivery.

Instructor Contact. Instructors for all courses are available to answer questions as well as grade homework and exams. Students can reach instructors by calling Engineering Outreach, by FAX, by e-mail, or by arranging a videoconference with the instructor, if the student has access to desktop videoconferencing equipment.

E-mail and Internet Access. E-mail and Internet access is required for all Engineering Outreach students. The Internet facilitates access to the UI Library and Computer Services Help Desk. Students may check their local Yellow Pages for Internet providers in their area.

Textbooks and Computer Products. Textbooks can be ordered from the UI Bookstore by calling Engineering Outreach. Students may order textbooks C.O.D. or charge them to a VISA, MasterCard, or Discover account. All Idaho residents must pay 5 percent sales tax on the price of the book. Students may also order texts directly from a local bookstore or through the Internet. Students should check to make sure they are ordering the appropriate edition of the correct textbook.

Software, hardware, and computer products are available to students at academically discounted prices from the UI Bookstore—Computer Department. (New and transfer students are eligible for the discount immediately upon admission to UI.) Orders and payments are processed by the same method as textbook orders described above. Access the UI Bookstore/Computer Store website at http://www.bookstore.uidaho.edu for more information.

Course Materials. Students who are enrolled in classes that were taped in a previous semester will receive all course materials (excluding tapes) in one shipment at the beginning of the semester. Those enrolled in classes taped live that semester will receive materials with corresponding tapes. In some courses, materials may also be available for review and printing directly from the Internet.

Homework. Students send completed homework directly to the instructor by mail, FAX, or e-mail; students should make a copy for personal records before mailing. The Engineering Outreach office returns graded homework to students. Students who view tapes at a Resident Instruction Center submit completed assignments to the center coordinator. Engineering Outreach does not track or record grades for homework or projects.

Exams. Exams are sent directly to an examination coordinator (proctor) recommended by the student and approved by Engineering Outreach. Proctors must certify that they are not a personal friend, family member, or subordinate of the student, and that they are not enrolled in any Engineering Outreach course. Some suggestions are a work supervisor, public librarian, faculty or staff member at an educational institution, or military education officer. The exam proctor is responsible for supervising the process and returning the exam to Engineering Outreach. The proctor should make a copy of the completed exam before mailing. Most instructors will have specific instructions and deadlines for exams. Depending on the instructor, late exams may not be accepted, or may receive a lower grade. Exams must be signed and dated by the proctor and the student before being returned to Engineering Outreach. Graded exams are returned to students by the Engineering Outreach office (Resident Instruction Center students retrieve exams from the center coordinator).

Library Services. The computer information system of the UI Library, "Ida," can be accessed via Internet and searched by author, subject, and title. To request books or photocopies of articles, access the UI Library website at http://www.lib.uidaho.edu, or use the Interlibrary Loan Request Form provided in the *Semester Course Offerings Catalog*. For further information, contact the UI Library at 800/294-8097.

Fee Information

Engineering Outreach Fees (international students pay additional fees to cover the cost of shipping by Federal Express):

Nondegree students: $324 per credit

Graduate students and all 500-level courses: $351 per credit

UI Resident Instruction Center Fees. Students who live near one of the Resident Instruction Centers in Boise, Coeur d'Alene, or Idaho Falls may choose to view courses at a center for a reduced fee. The staff at the center will receive tapes, course materials, and exams from Engineering Outreach, facilitate tape viewing for students, distribute course materials to students, proctor exams, and collect and return homework for students. Tapes can be viewed during times determined by each center and may not be checked out overnight. **It is strongly recommended that students contact the nearest center before registration to determine if the hours set for viewing tapes will work with their schedules.**

Nondegree students: $168 per credit

Graduate students and all 500-level courses: $195 per credit

All fees are subject to change by the Regents of the University of Idaho at any time.

Financial Aid and Veterans' Benefits. UI Engineering Outreach students may be eligible for federal financial aid and/or veterans' benefits. For further information, contact Engineering Outreach and the call will be transferred to the Student Financial Aid Office or the Veterans' Affairs Office.

Students planning to use financial aid to pay fees must have a completed file in the Student Financial Aid Office, and the dollar amount of the award must be verified before the Engineering Outreach course registration deadline. Fees will be deducted from financial aid checks, and students will receive any remaining balance directly from UI Business and Accounting Services.

Admission and Registration Information

All Engineering Outreach students must be admitted to UI. Refer to Part 2 of this catalog for undergraduate and graduate admission requirements. Admission forms are available directly from the Undergraduate Admissions and Graduate Admissions Offices, or from the Engineering Outreach *Semester Course Offerings Catalog*, or can be submitted electronically by accessing the Admissions website at http://www.uidaho.edu/admissions.

Students must register as graduate students if they have been admitted by the College of Graduate Studies and accepted into a graduate

degree program at UI. If their graduate application is in process and they have not received an acceptance letter before the registration deadline, they must register as nondegree students (submit the "Application for Nondegree Student" to the UI Undergraduate Admissions Office). Students may also register as nondegree students if they wish to pursue studies for personal or professional development, are meeting a prerequisite or deficiency requirement before seeking admission to a graduate degree program, wish to transfer UI course credits to another university, or are auditing a class. Note that **students admitted to the nondegree category at UI are not eligible to receive federal Title IV financial aid.**

Engineering Outreach Calendar. The UI Engineering Outreach program operates on a semester schedule. There are three semesters: fall, spring, and summer. Six weeks before the start of a new semester, Engineering Outreach produces a *Semester Course Offerings Catalog* that lists all the courses that will be offered in the upcoming semester. There are specific registration and late registration deadlines each semester.

	Registration Deadline	Registrations Accepted Until	Course Completion Deadline
Fall 2000	August 18, 2000	August 25, 2000	January 5, 2001
Spring 2001	January 5, 2001	January 12, 2001	June 1, 2001
Summer 2001	June 1, 2001	June 8, 2001	August 17, 2001

Adding/Dropping and Refunds. Students are not permitted to add or switch classes after the late registration deadline has passed. Engineering Outreach operates with limited staff on a very tight production and shipping schedule. Students should contact the course instructor before registration if there is any doubt about a class meeting their needs.

Drop dates and corresponding refund amounts are printed on the calendar on the inside front cover of the Engineering Outreach *Semester Course Offerings Catalog*. The final date by which students can withdraw from a course without petitioning is also listed on the calendar. Students wishing to drop after this deadline must petition the Academic Petitions Committee. Petitions are considered on a case-by-case basis, and there is no guarantee that the petition will be granted.

Course Extensions. A grade of "incomplete" may be granted only by permission of the course instructor and only for unexpected compelling reasons. Contact the instructor before submitting a Student Request Form to find out if support documentation is required. If granted, the student will receive a grade of "I" (incomplete) for the course at the end of the semester. Upon completion of the course requirements, the instructor will change the grade accordingly. Students must complete all course work by the grade reversion deadline, which is six weeks into the following semester (six weeks into the spring semester for fall incompletes, six weeks into the fall semester for spring and summer incompletes). A grade of "I" that is not removed before the deadline will automatically revert to a letter grade assigned by the instructor (based on work actually completed). A grade of "I" may be extended once for not more than one calendar year from the date that the first extension is approved. Students with a provisional acceptance to the College of Graduate Studies cannot receive a grade of "I." Both the "I" grade and the final grade will remain as a permanent part of the student's transcript.

For further information or to request the current *Semester Course Offerings Catalog*, contact Engineering Outreach, University of Idaho, Moscow, ID 83844-1014; phone 208/885-6373, FAX 208/885-6165, e-mail outreach@uidaho.edu, or access the Engineering Outreach website at http://www.uidaho.edu/evo.

Summer Programs

Summer Session is an integral part of the year-round instructional program at the University of Idaho. A twelve-week summer session begins about the third week of May. The flexible summer schedule includes a session that begins the Monday following Commencement, a second session that starts in mid-June, and a late four-week session. The summer schedule of classes is designed to provide students with the opportunity to complete their academic programs in a timely manner. Special and innovative programs are offered to meet the needs of in-service professionals and other clientele throughout the state and nation.

Academic regulations included in this catalog are applicable during the summer session. Anyone interested in enrolling is invited to write the Summer Programs Office for a copy of the summer catalog that is published each year in late February or early March. The catalog contains complete information needed to register for the summer session. For more information, call (208) 885-6237.

Department of Accounting

Marcia S. Niles, Dept. Head (104 Continuing Education Bldg. 83844-3169; phone 208/885-6453). *Faculty:* Teresa P. Gordon, Jeffrey L. Harkins, Marla A. Kraut, Marcia S. Niles, Hugh D. Pforsich, Dan Swenson, Glen G. Utzman. *Adjunct Faculty:* John L. Farbo.

The goal of the accounting program is to prepare graduates to enter the accounting profession in public accounting, industry, or the public sector. The program develops and enhances a student's thinking, judgment, and communication skills, while providing a sound technical foundation.

The department offers two degrees, a bachelor of science in business and a master of accountancy.

The 128-credit bachelor's degree in accounting has a managerial or controllership emphasis, designed to prepare students for professional positions as employees. Graduates are qualified for jobs as cost accountants, as accountants within a governmental unit, as production accountants for a manufacturer, as project managers, or as internal auditors.

The M.Acct. degree program has primary emphasis areas or tracks that include auditing and financial accounting, corporate accounting management and controllership, government and not-for-profit fiscal management, international accounting, accounting information systems analysis and design, and taxation. Other emphasis areas or tracks are permitted, subject to approval by the departmental graduate committee.

Admission to the M.Acct. degree requires (1) a B.S., B.A., or B.B.A. degree from an accredited college or university, (2) acceptable GRE or GMAT examination score, (3) an undergraduate grade-point average of at least 3.00, and (4) a minimum TOEFL score of 550 (if applicable).

Courses

See part 6 for courses in Accounting (Acct).

Undergraduate Curricular Requirements

ACCOUNTING (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3) with the limitation that accounting majors must take Anth 100, Soc 101, or Psyc 101 for the social science requirement, the general requirements for graduation from the College of Business and Economics (see part 4), and:

Acct 300 Accounting Concepts & Systems 3
Acct 301 Corporate Accounting & Reporting 3
Acct 305 Accounting Information Systems 3
Acct 385 Cost & Management Accounting 3
Acct 492 Auditing & Controls 3
Accounting electives chosen from the following 9
- BLaw 420 Commercial Law
- Acct 430 Accounting for Public Sector Entities
- Acct 483 Federal & State Taxes I
- Acct 484 Federal & State Taxes II
- Acct 486 Contemporary Management Accounting Issues
- Acct 490 Advanced Corporate Accounting & Reporting

One of the following courses 3
- Bus 250 Introductory Systems Development
- CS 101 Introduction to Computer Science
- CS 112 Introduction to Problem Solving & Programming
- Phil 201 Critical Thinking
- Phil 202 Introduction to Symbolic Logic

Electives to total 128 credits for the degree ..... —

Graduate Degree Program

The Master of Accountancy degree requires 30 semester credits beyond the bachelor's degree, and is designed to meet the 150-credit requirement for taking the CPA examination in Idaho. Completion of this degree qualifies students to enter the public accounting profession in auditing, tax, or other positions ultimately requiring a CPA license.

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Accounting. See the College of Graduate Studies section of part 4 for the general requirements applicable to the M.S. degree.

Students seeking the M.Acct. degree will develop a degree plan in consultation with their advisers, complete at least 30 credits of course work, and successfully complete a comprehensive written examination.

Required courses include Acct 561, 570, 590, and 592, plus one course chosen from Acct 530, 584, 585, 586, 598, 599 (students must have taken at least one tax class at the undergraduate or graduate level). An additional 15 credits are chosen from approved options, which must include 9 credits outside of accounting. Those electing the thesis option include 6 credits of Acct 500 in the additional 15 credits.

Division of Adult, Counselor, and Technology Education

James M. Cassetto, Interim Div. Director (210 Educ. Bldg. 83844-3083; phone 208/885-6556; e-mail acte@uidaho.edu; http://www.uidaho.edu/ed/acte).

***Adult Education Faculty:* Jack J. Kaufman, Jerry McMurtry, Michael E. Tomlin, Baiyin Yang, Martha C. Yopp.**

***Business Education Faculty:* K. Allen Kitchel, Nancy A. Swanger, Martha C. Yopp.**

***Counseling and School Psychology Faculty:* Ernest Biller, William T. Divane, Thomas N. Fairchild, Jerome H. Fischer, Sharon K. Fritz, William Gibson, Debra Goldfine, Martha A. Kitzrow, James D. Morris, Charles R. Morrison, Dianne L. Phillips-Miller, Joan Pulakos, Steve A. Saladin, Thomas V. Trotter, Jerry L. Tuchscherer. *Adjunct Faculty:* W. Harold Godwin, Meredyth L. Goodwin, Patrick J. O'Toole, Bruce M. Pitman, Roxanne E. Schreiber.**

***Professional-Technical Education Faculty:* James M. Cassetto, James J. Connors, Yvonne S. Gentzler, Jack J. Kaufman, K. Allen Kitchel, Mark McCaslin, Jerry McMurtry, John Mundt, Douglas A. Pals, Lou E. Riesenberg, Cynthia J. Schmiege, Charles F. Schoeffler, Dale Stephenson, Nancy A. Swanger, Jerry L. Tuchscherer, Martha C. Yopp.**

***Rehabilitation Counseling Faculty:* Jerome H. Fischer.**

***School Psychology Faculty:* Thomas N. Fairchild, Thomas V. Trotter.**

***Technology Education Faculty:* James M. Cassetto, Charles F. Schoeffler, Dale Stephenson.**

The professional degree majors in adult, counselor, and technology education provide both the opportunity and relevant skills to enable teachers, administrators, counselors, and business and industry personnel to work effectively with today's industries, youth, and adults. Students benefit from the realistic relationships between course work and occupational competencies required by educational institutions, business, industry, agriculture, and family life.

Preservice teaching degree majors are offered in: business education (B.S.Bus.Ed.), marketing education (B.S.Bus.Ed.), technology education (B.S.Ed.), and professional-technical education (B.S.Ed.) in the College of Education; and agricultural education (B.S.Ag.Ed.) and child, family, and consumer studies (family life education option) (B.S.F.C.S.) in the College of Agriculture. (See Admission to Teaching Education Program.)

For all undergraduate teaching degrees listed below the student should consult an adviser concerning state requirements for the professional-technical education certificate.

Two nonteaching undergraduate majors are available in office administration (B.S.O.Ad.) and technology (B.S.Tech.) through the College of Education for students who wish to capitalize on their secretarial and office management skills or technical and professional skills in industry or business.

Agricultural Education. Graduates with this degree (B.S.Ag.Ed.) are qualified for a standard secondary teaching certificate and are qualified to teach secondary agricultural science and technology. Schools, government, and agribusiness agencies that seek persons with training in agriculture and education provide employment opportunities for graduates of this curriculum. (See Agricultural and Extension Education for program and course descriptions.)

Business Education. This major (B.S.Bus.Ed.) is for students whose primary interest is teaching business education at the secondary level. Also available at the undergraduate level is a degree in Office Administration (B.S.O.Ad.). Students electing this major generally choose careers in office administration and related office and business positions.

Marketing Education. This major (B.S.Bus.Ed.) is for students whose primary interest is in teaching marketing, merchandising, and management at the high-school or postsecondary level.

Family Life Education. Family life education (B.S.F.C.S.) is offered through the Margaret Ritchie School of Family and Consumer Sciences. (See Family and Consumer Sciences for program and course descriptions.) The program prepares students for teaching child, family, and consumer issues in the public schools, in community settings, or to business audiences. Graduates of the major include teachers in public and private institutions either at the secondary or postsecondary level as well as private agencies.

Professional-Technical Education. A degree in professional-technical education (B.S.Ed.) is designed primarily for teachers in area professional-technical schools and secondary trade and industry programs who do not hold degrees. It does not qualify one for teaching in a public K-12 system unless a person also holds a secondary endorsement or a professional-technical specialist certificate.

Professional-Technical Certification. In collaboration with the Idaho State Division of Professional-Technical Education, sequential inservice undergraduate professional-technical education degree courses, as well as selected graduate professional-technical courses, are offered each semester at area professional/technical schools located at Coeur d'Alene, Lewiston, Boise, and Twin Falls.

Technology Education. The undergraduate program in technology includes two degree programs. One is the Bachelor of Science in Technology (B.S.Tech.), which prepares students for technical and professional careers in industry or business. The other (B.S.Ed.) is a degree with a major in technology education and provides opportunities for students to develop skills in several technical teaching areas and also prepares them for certification as technology teachers in the secondary schools.

Graduate Education/Counseling and School Psychology. The counseling program offers course work at the master's level for individuals seeking preparation as counselors in school, community, and rehabilitation settings. In addition, the doctorate is available for those seeking an advanced counselor education program.

Specialist-level programs meet Idaho certification requirements in school psychology and advanced school counseling. All programs are designed to assist the student toward meeting the requirements for counselor licensure.

Doctoral degrees are offered under the major in "education."

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COPA), has accredited the following programs in the Counseling and School Psychology Program: community counseling (M.Ed., M.S.), school counseling (M.Ed., M.S.), and the counselor education and supervision emphasis in the Ed.D. and Ph.D. programs. Those programs are also accredited by the National Council for the Accreditation of Teacher Education (NCATE) and the National Association of State Directors of Teacher Education and Certification (NASDTEC). The school psychology program is accredited by NASDTEC and the National Council for the Accreditation of Teacher Education (NCATE). The rehabilitation counseling graduate program is accredited by the Council on Rehabilitation Education (CORE). All programs afford the graduate the opportunity to take the National Board for Certified Counselor Examination (NBCC) and its subtests.

Counseling and Human Services is a field that prepares professionals to work with children, adolescents, and adults to enhance academic, social, emotional, vocational, and personal growth. Students are provided with theoretical knowledge bases as well as practical application of skills in carefully selected field placements.

School Counseling. The graduate program in school counseling (M.Ed., M.S., and Ed.S.Couns.-Hum.Serv.) may be used to meet state certification for school counseling (school and vocational). Graduates usually seek positions in K-12 schools, postsecondary institutions, vocational counseling programs (either school or agency), employment agencies, and career centers.

Community Counseling. The graduate degree program in community counseling (M.Ed., M.S., and Ed.S.Couns.-Hum.Serv.) offers degrees at the master's and education specialist levels. Graduates usually seek careers in private practice and agency counseling centers.

Curricular requirements in the school counseling and community/agency counseling programs include: Individual Appraisal, Techniques of Counseling, Vocational Counseling, Lifespan Development, Social/Cultural Foundations, Group Counseling, Diagnosis and Case Conceptualization, Practicum, and Internship.

School Psychology. The school psychology program offers the education specialist degree (Ed.S.Sch.Psych.) for those preparing to be school psychologists. Curricular requirements in the program include: course work in psychological foundations, educational foundations, interventions/problem solving, statistics/research methodologies, professional school psychology, practica, and internship.

Rehabilitation Counseling. The vocational rehabilitation counseling program has graduate degrees available at the master's and education specialist levels (M.Ed., M.S., and Ed.S.Couns.-Hum. Serv.). Curricular requirements in the major include: Principles and Practices of Rehabilitation; Psycho-social Aspects of Disability; Medical/Physical Aspects of Rehabilitation; Rehabilitation Case Management and Community Resources; Assessment in Vocational Rehabilitation; Vocational Placement and Assistive Technology; Professional Issues, Ethics, and Law in Rehabilitation; Practicum; and Internship. The program will afford the graduate the opportunity to take the Certified Rehabilitation Counselor (CRC) Examination. Graduates assume careers with vocational rehabilitation agencies, hospital rehabilitation centers, community rehabilitation programs, and as private rehabilitation practitioners.

Counselor Education. Doctoral level programs in counselor education prepare individuals for advanced clinical, administrative, and counselor education positions. Doctoral degrees, Doctor of Philosophy (Ph.D.) and Doctor of Education (Ed.D.), with a counseling major are offered to those seeking advanced graduate preparation beyond the education specialist.

Graduate Education/Adult and Professional-Technical Education. The graduate program is designed with flexibility to permit each student to pursue an individualized concentration in professional-technical and/or adult education. The graduate program offers students an opportunity to prepare for other responsibilities. Among the various career objectives a graduate student may choose are positions as curriculum coordinator, cooperative education coordinator, administrator of adult basic education program, human resource development specialist, work-based learning coordinator, supervisor of instruction, and administrator of professional-technical programs. In addition to seeking these local staff opportunities, many graduates of the professional-technical education program prepare for master-teacher assignments at the secondary level or as postsecondary (two-year college) instructors.

The graduate degrees of Master of Science (M.S.), Master of Education (M.Ed.), Education Specialist in Adult Education (Ed.S.Ad.Ed.), and Education Specialist in Professional-Technical Education (Ed.S.P.-T.Ed.) with emphasis in adult education, business education, industrial technology education, and professional-technical education, are offered through the division.

Doctoral programs in the division with major emphasis in adult education and professional-technical education are offered under the major in "education."

A student with a baccalaureate degree from an accredited college or university with a major in one of the following related areas may apply for graduate study in professional-technical education: adult education, agricultural science and technology, business occupations, counseling, health occupations, family and consumer science, industrial technology, marketing education, technology (engineering), trade and industrial/technical education, special populations, or career development.

A student with a baccalaureate degree with a major in a nonrelated area must have work experience appropriate to a related area in order to apply for graduate study in professional-technical education and/or (1) certification by the Idaho State Division of Professional-Technical Education as a professional-technical teacher in Idaho, (2) baccalaureate degree in a recognized professional-technical field, (3) a baccalaureate degree, occupational experience, and current employment as a professional-technical teacher, or (4) a baccalaureate degree, occupational experience, and current work toward employment as a professional-technical teacher—with approval of the division's graduate committee.

Adult Education. A graduate degree in adult education is offered at the master's (M.Ed., M.S.), Education Specialist (Ed.S.Ad.Ed.), and doctoral (Ph.D., Ed.D. with a major in education) levels. The curriculum requires the following courses in the major: Foundations of Adult Education, Psychology of the Adult Learner, Analysis and Curriculum Development, Strategies for Teaching Adults, Lifespan Development, and Communications Skills for Teachers of Adults. Graduates are prepared to accept teaching positions in postsecondary institutions, adult basic education programs, administration, as human resource specialists, and in private industry.

Business Education. A Master of Education (M.Ed.) degree is available in business education. The curriculum requires the following courses in the major: Principles and Philosophy of Professional-Technical Education; Teaching Strategies; Analysis, Curriculum, and Evaluation; Issues in Business or Marketing Education; Basic Business Subjects; and technology electives. Graduates of this program generally are employed as master teachers in secondary and postsecondary institutions.

Industrial Technology Education. Graduates of a Master of Science (M.S.) or a Master of Education (M.Ed.) program in industrial technology generally are employed in secondary and postsecondary teaching programs as master teachers or as mid-level managers and technical consultants in business and industry. The curricular requirements in the major include the following courses: Principles and Philosophy of Professional-Technical Education, Teaching Strategies, Analysis, Curriculum, and Evaluation, and Industrial Technology Education Seminar. Each master's student must demonstrate a proficiency in the five industrial technology cluster areas of power, energy, and transportation; communication; manufacturing; construction; and principles of technology.

Professional-Technical Education. Students may seek a Master of Science (M.S.), Master of Education (M.Ed.), Education Specialist (Ed.S.P.-T.Ed.), or doctoral (Ph.D. or Ed.D. with a major in education) degree in professional-technical education. Graduates are generally employed as administrators, master teachers, or program directors either in educational institutions or business and industry. Curriculum requirements in the major field include: Principles and Philosophy of Professional-Technical Education, Teaching Strategies, and Analysis and Curriculum Development.

Courses

See part 6 for courses in Adult, Counselor, and Technology Education (ACTE), Adult Education (AdEd), Business Education (BuEd), Counseling and School Psychology (CASP), Industrial Technology Education (ITED), and Professional-Technical Education (PTE).

Undergraduate Curricular Requirements

BUSINESS EDUCATION (B.S.Bus.Ed.)

Students whose primary interest is in secretarial and clerical subjects and who wish to qualify for professional-technical certification elect this major. Consult the business education adviser concerning state requirements for the professional-technical education certificate.

Required course work includes the university requirements (see regulation J-3), the general requirements for students preparing to teach at the secondary level (see College of Education section in part 4), and:

BuEd 102 Typewriting II	2
BuEd 185 Machine Calculation	2
BuEd J210/J410 Alphabetic Shorthand I	2
BuEd 328 Computer Operating Systems for Technology	4
BuEd 395 Administrative Office Procedures	3
BuEd 415 Microcomputer Applications	3
BuEd 418 Teaching Consumer Economics	2
BuEd 419 Information Processing Management	3
BuEd 430 Supervising Business Professionals of America	2
BuEd 457 Transitioning to Work	2
BuEd 491-492 Teaching Business Education I-II	4-6
Acct 201 Introduction to Financial Accounting	3
Acct 202 Introduction to Managerial Accounting	3
ACTE 444 Diverse Populations & Individual Differences	2
ACTE 460 Using Internet-Based Career Information in the Classroom	2
BLaw 265 Legal Environment of Business	3
Econ 201, 202 Principles of Economics	6
Engl 313 Business Writing	3
FCS 448 Consumer Economic Issues	3
PTE 351 Principles & Philosophy of Professional-Technical Education	3
Accounting, business, or economics electives	6

COUNSELING AND SCHOOL PSYCHOLOGY

An undergraduate major is not offered in counseling and school psychology. Students who wish to apply for counseling and school psychology should seek advice from the counseling faculty.

INDUSTRIAL TECHNOLOGY (B.S.Tech.)

Designed to prepare students for both technical and professional careers in industry and business, particularly for supervisory and other mid-management level positions.

Required course work includes the university requirements (see regulation J-3) and:

BLaw 265 Legal Environment of Business	3
Bus 311 Introduction to Management	3
Bus 370 Production/Operations Management	3
Bus 441 Labor Relations	3
Bus 456 Quality Management	3
BuEd/ITED 415 Microcomputer Applications	3
BuEd/ITED 460 Desktop Publishing	3
Chem 101 Introduction to Chemistry I	4
Engr 105 Engineering Graphics	2
Engl 317 Technical & Engineering Report Writing	3
ITED 130 Basic Electronics	4
ITED 238 Digital Electronics	3
ITED 265 Computer Aided Drafting/Design	2
ITED 270, 370, 470 Technical Competence and/or ITED 490, 491, 492 Adv Technical Competence and/or approved technical electives	29
ITED 328 Computer Operating Systems for Technology	4
ITED 380 Computer Numerical Control Manufacturing	4
ITED 450 Industrial Safety	3
ITED 475 LAN Technology	4
Math 143 Pre-calculus Algebra & Analytic Geometry	3
Phys 100 Fundamentals of Physics	4
Phys 111, 112 General Physics I-II or 211, 212 Engineering Physics I-II	8
Psyc 101 Introduction to Psychology	3
Stat 251 Principles of Statistics or 301 Probability & Statistics	3

And 30 credits in one of the technical specialization blocks. For a listing of the specific courses required in each of these blocks, consult the chair of the department.

The minimum number of credits for the degree is 134.

Technical Specialist Blocks. Moscow campus: manufacturing technology, computer electronics and industrial instrumentation technology, computer management technology, industrial generalist technology. Idaho Falls campus: industrial safety technology, quality technology, network and computer electronics, nuclear operations technology, mechanical design technology, generalist, waste management.

MARKETING EDUCATION (B.S.Bus.Ed.)

The marketing education major is for students who are interested in teaching marketing, merchandising, and management at the high-school or postsecondary level. Students electing this major should consult the marketing education adviser concerning state requirements for the professional-technical education certificate.

Required course work includes the university requirements (see regulation J-3), the general requirements for the student preparing to teach at the secondary level, and:

Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
ACTE 444 Diverse Populations & Individual Differences 2
ACTE 460 Using Internet-Based Career Information in the Classroom 2
Bus 311 Introduction to Management 3
Bus 321 Marketing 3
Bus 425 Retail Distribution Management 3
BuEd 415 Microcomputer Applications 3
BuEd 457 Transitioning to Work 3
BuEd 493 Teaching Marketing Education 3
BuEd 494 Marketing Education Materials 2
BuEd 495 Supervising DECA Programs 2
BuEd 496 Directed Work Experience 3
Econ 201, 202 Principles of Economics 6
PTE 351 Principles & Philosophy of Professional-Technical Education 3

And the completion of a 20-credit teaching minor or the following:

Additional requirements for a 60-credit concentration:

Bus 323 Promotional Strategy 3
Bus 324 Buyer Behavior 3
BuEd 418 Teaching Consumer Economics 2
FCS 448 Consumer Economic Issues 3
Business or communication electives (approved by marketing ed teacher educator) 9

OFFICE ADMINISTRATION (B.S.O.Ad.)

This degree is for students whose primary interest is in secretarial administration and related office and business positions. Required course work includes the university requirements (see regulation J-3) and the following, including at least 52 credits in courses in Bus, Econ, Acct, and BuEd and at least 52 credits in courses outside those areas:

BuEd 102 Typewriting II 2
BuEd 185 Machine Calculation 2
BuEd 210 Alphabetic Shorthand I 2
BuEd 328 Computer Operating Systems for Technology 4
BuEd 395 Administrative Office Procedures 3
BuEd 413 Administrative Office Management 3
BuEd 415 Microcomputer Applications 3
BuEd 419 Information Processing Management 3
BuEd 460 Desktop Publishing 3
BuEd 490 Records Management 3
BuEd 496 Directed Work Experience 3-9
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
BLaw 265 Legal Environment of Business 3
Bus 311 Introduction to Management 3
Bus 321 Marketing 3
Bus 412 Human Resource Management or Bus 418 Organization Theory 3
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Engl 313 Business Writing or 317 Tech & Engr Report Writing 3
One mathematics course 3
One statistics course 3
Business or economics electives 6
Electives to complete 128 cr for the degree ..... —

PROFESSIONAL-TECHNICAL EDUCATION (B.S.Ed.)

This degree is designed for those teachers in secondary trade and industrial programs who wish to teach in postsecondary professional-technical programs.

Required course work includes the university requirements (see regulation J-3) and:

PTE 270, 370, 470 Technical Competence 32
PTE 351 Principles & Philosophy of Professional-Technical Education 3
PTE 420 Evaluation in Professional-Technical Education 3
PTE 426 Instructional Design & Curriculum 3
PTE 450 Industrial Safety 3
PTE 464 Career Guidance or ACTE 460 Using Internet-Based Career Information in the Classroom 2-3
PTE 471 Practicum in Professional-Technical Teaching or ED 431 Secondary School Teaching* 3-10
PTE 472 Professional-Technical Education Methods 3
ACTE 457 Transitioning to Work 3
Comm 101 Fundamentals of Public Speaking or 132 Oral Interpretation 2
Hist 111 or 112 Intro to U.S. History or PolS 101 Intro to Political Science & American Government 3
Psyc 101 Introduction to Psychology 3
English or literature electives 6
Science-mathematics electives 12
Electives in general studies (to be selected from humanities, social sciences, and natural sciences) 4
Professional-technical electives 16-19
PTE 200, 400 Seminar (3-6 cr)
PTE 203, 403 Workshop (1-6 cr)
PTE 204, 404 Special Topics (3-6 cr)
PTE 299, 499 Directed Study (3-9 cr)
PTE 306 Preservice for New Professional-Technical Teachers
PTE 307 Inservice for New Professional-Technical Teachers
PTE 418 Learning Styles
ACTE 444 Diverse Populations & Individual Differences
AdEd 473 Foundations of Adult Education
Approved course in computer literacy (3 cr)
Electives approved by professional-technical teacher educator 11

*If the student wishes to receive a standard secondary certificate, the requirement is ED 431 or PTE 471 and the following courses:

ED 201 Diverse Learners in Schools & Social/Cultural Contexts (if the student has no teaching experience) 3
ED 312 Educational Psychology 2
ED 313 Educational Measurement 1
ED 314 Strategies for Teaching 3
ED 445 Proseminar in Teaching 3
ED 468 Historical & Philosophical Foundations of Ed or PTE 351 Principles & Philosophy of Professional-Technical Education
EDTE 463 Literacy Methods for Content Learning 3

TECHNOLOGY EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3), the general requirements for students preparing to teach at the secondary level (see College of Education section in part 4), and:

ITED 110 Technology & Society 3
ITED 130 Basic Electronics 4
ITED 328 Computer Operating Systems for Technology 4
ITED 360 Communication Technology Systems 4
ITED 380 Computer Numerical Control Manufacturing 4
ITED 415 Microcomputer Applications 3
ITED 426 Analysis, Curriculum, & Evaluation 3
ITED 429 Student Organizations 1
ITED 450 Industrial Safety 3
ITED 472 Industrial Technology Teaching Methods 3
ACTE 444 Diverse Populations & Individual Differences 2
ACTE 445 Proseminar in Professional-Technical Education 2
ACTE 457 Transitioning to Work 3
ACTE 460 Using Internet-Based Career Information in the Classroom 2-3
ACTE 471 Practicum: Professional-Technical Education Teaching 10
Engr 105 Engineering Graphics 2
Math 143 Pre-calculus Algebra & Analytic Geometry 3
PTE 351 Principles & Philosophy of Professional-Technical Education 3

Students planning to earn an Idaho Standard Teacher Certificate in Technology Education take the following courses:
ITED 120 Principles of Technology 4
ITED 218 Power, Energy, & Transportation Technology Systems 4
ITED 253 Advanced Manufacturing Systems Technology 4
ITED 280 Construction Technology Systems 4
And option A, B, or C below, or the courses taken by students planning to earn an Idaho Standard Teacher Certificate in Computer Applications below

Students planning to earn an Idaho Standard Teacher Certificate in Computer Applications take the following courses:
BuEd/ITED J419/J519 Information Processing Management 3
BuEd/ITED 460 Desktop Publishing 3
ITED 382 Computer Hardware Technology 3
ITED 444 Telecommunications 3
ITED 475 LAN Technology 4
ED 328 Introduction to Educational Technology 2
And option A, B, or C below, or the courses taken by students planning to earn an Idaho Standard Teacher Certificate in Technology Education above

Prerequisite Skills Package (cannot be used as part of the major) (students may test out of the following classes; however, the classes are considered prerequisites to Technology Education):

ITED 250 Manufacturing 4
ITED 265 Computer Aided Drafting/Design 2
ASM 107 Beginning Welding 2

And one of the following options:

A. GENERAL INDUSTRIAL TECHNOLOGY OPTION: 10 credits in approved ITED courses distributed throughout several technology areas.

B. TEACHING MINOR OPTION: 20-30 credit teaching minor to be selected from the list of "teaching majors and minors" in the College of Education section.

C. INDUSTRIAL TECHNOLOGY SPECIALIZATION OPTION: 10-20 additional credits in a specialized area of technology. Students may specialize in one of the following technology areas: electronics, manufacturing and construction, graphic communication, construction technology, general technology, computer technology, science technology, or math technology

Graduate Degree Programs

Master of Education and Master of Science. Master's and education specialist degree candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Adult, Counselor, and Technology Education. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Education Specialist. Offered in adult education, counseling and human services, school psychology, and professional-technical education.

Doctor of Education and Doctor of Philosophy. The Ed.D. and Ph.D. programs are designed for those persons who show promise in theory development and research, and who appear likely to provide leadership in the profession. The programs aim to develop a comprehensive understanding of the field and the ability to identify and resolve pertinent problems. Division minimum requirements for the Doctor of Education (Ed.D.) degree are: 15 credits in research competency, including statistics and research design; practicum and field experience; 18 to 25 credits in dissertation; 18 to 20 credits in a cognate area; and 30 credits in a major area of competency.

Division minimum requirements for the Doctor of Philosophy (Ph.D.) degree are: 21 credits in research competency, including statistics and research design, and a reading competency of one foreign language or 9 to 12 credits in a related research area; practicum and field experience; 18 to 25 credits in dissertation; and 20 to 30 credits in a major area of competency.

Aerospace Studies

Chester G. Herbst, Head (UI Shoup Hall 83844-2005; phone 208/885-6129; or Washington State Univ. Kruegel Hall; phone 509/335-5598; http://www.wsu.edu:8080/~afrotc). *Faculty:* Chester G. Herbst, Gary Foster, Joseph Tinghitella, S. Lisa Ward.

The Air Force Reserve Officer Training Corps (ROTC) offers eligible students education and training that leads to a commission as a second lieutenant in the U.S. Air Force. Air Force ROTC students may major in any degree program offered at UI; they supplement their major curricula with the specialized aerospace studies courses to prepare for active commissioned service.

Four-Year Program (General Military Course and Professional Officer Course). A formal application is not required for students entering the four-year program. They may register for the program at the same time and in the same manner as they enroll in their other college courses. During their freshman and sophomore years, students enroll in the General Military Course (GMC), and there is NO MILITARY OBLIGATION. They then may compete for entry into the Professional Officer Course (POC), which is normally taken during the last two years of college. Selection into the POC is highly competitive and is based on qualification on an Air Force medical examination, a physical fitness test, scores achieved on the Air Force Officer Qualifying Test (AFOQT), successful completion of a paid four-week field training course at an Air Force base, and the recommendation of the professor of aerospace studies.

Two-Year Program (Professional Officer Course). The two-year program consists of the Professional Officer Course (POC), the last two years of the four-year program. It is designed to provide greater flexibility to meet the needs of the students desiring Air Force opportunities. The basic requirement is that applicants have at least two academic years remaining at either the undergraduate or graduate level, or a combination of both.

After being nominated by the professor of aerospace studies, applicants seeking enrollment in the two-year program are evaluated on scores achieved on the AFOQT, the Air Force medical examination, a physical fitness test, and a personal interview. Because of processing procedures, interested applicants should contact the Department of Aerospace Studies no later than November of the year prior to entering the program. Application should be made in writing or by a personal visit to the professor of aerospace studies, UI Shoup Hall or WSU Kruegel Hall. After successfully completing a paid six-week field training course at an Air Force base during the summer, applicants meeting all requirements may then enroll in the Professional Officer Course.

Air Force ROTC also offers financial assistance to selected students in the form of scholarships and subsistence allowances. The students compete for the scholarships through a national screening process. The Air Force offers 1- to 4-year scholarships that cover tuition, fees, and a book allowance, and also provide a $150-a-month subsistence allowance for each school year a student is on scholarship. Students interested in applying for scholarships should get in touch with this department. Nonscholarship students receive the $150-a-month subsistence allowance while in the POC.

Field Training. Air Force ROTC field training is offered during the summer months at selected Air Force bases throughout the U.S. Students in the four-year program participate in four weeks of field training, usually between their sophomore and junior years. Students applying for entry into the two-year program must successfully complete six weeks of field training before enrollment in the Professional Officer Course. The major areas of study in the four-week field training program include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions and Air Force environment, and physical training. The major areas of study included in the six-week field training program are essentially the same as those conducted at four-week field training and in the General Military Course including Leadership Laboratory.

Leadership Laboratory. Leadership Laboratory is taken an average of two hours a week throughout the student's enrollment in Air Force ROTC. Instruction is conducted within the framework of an organized cadet wing with a progression of experiences designed to develop each student's leadership potential. Leadership Laboratory involves a study of Air Force customs and courtesies, drill and ceremonies, career opportunities in the Air Force, and the life and work of an Air Force junior officer. Students develop their leadership potential in a practical, supervised laboratory, which typically includes field trips to Air Force installations throughout the U.S.

Courses

See part 6 for courses in Aerospace Studies (Aero).

Programs

The following programs are designed to provide students with a good military and leadership foundation so students completing them can serve as effective Air Force officers. They are not designed to be academic majors and thus no bachelor's degree is offered.

For a student to receive an Air Force commission, he or she must have completed either the Four-Year Program or the Two-Year Program. Prior-service students should consult the department to find out what course of study will be required for them.

Four-Year Program

Aero 101-102 The Air Force Today 4
Aero 201-202 The Air Force Way 4
Aero 291 Four-Week Field Training Course 2
Aero 311-312 Air Force Leadership & Management 8
Aero 411-412 National Security Affairs/Preparation for Active Duty 8

Two-Year Program

Aero 292 Six-Week Field Training Course 6
Aero 311-312 Air Force Leadership & Management 8
Aero 411-412 National Security Affairs/Preparation for Active Duty 8

Academic Minor Requirements

AEROSPACE STUDIES MINOR

Courses selected from the following (at least 12 credits must be in courses numbered 300 and above) 18
- Aero 101-102 The Air Force Today
- Aero 201-202 The Air Force Way
- Aero 292 Six-Week Field Training Course
- Aero 311-312 Air Force Leadership & Management
- Aero 411-412 National Security Affairs/Preparation for Active Duty

Program in Aging Studies

Virginia W. Junk, Coordinator (108C Mary Hall Niccolls Bldg. 83844-3183; phone 208/885-7264; gjunk@uidaho.edu, http://www.uidaho.edu/fcs/ageminor). *Faculty:* Ginna M. Babcock, Stephen B. Banks, Elizabeth B. Brandt, Jess D. Caudillo, Virginia W. Junk, Jamie C. Nekich-Locke, Cynthia J. Schmiege, Paul G. Windley.

The Aging Studies Minor connects different knowledge bases across many disciplines. The program offers an interdisciplinary approach that uses the concept of growing older to examine such cultural variables as class, ethnicity, nationality, gender, and developmental processes. The courses encourage students to develop critical thinking skills that will empower them as active learners and that will lead them to having a better understanding of what it means to grow old in a new age. Field and applied experiences will enable students to demonstrate new knowledge and to refine their competence in working with real life community and family problems. Fields such as mass communications, recreation, criminology, economics, health services, social work, law, psychology, education, and family and consumer studies are increasingly offering special career opportunities to students with a background in aging studies.

Academic units that cooperate to offer this minor include the School of Family and Consumer Sciences, the Division of Health, Physical Education, Recreation and Dance, and the Departments of Architecture, Psychology, and Sociology/Anthropology/Justice Studies.

Academic Minor Requirements

AGING STUDIES MINOR

Psyc 419 Adult Development & Aging 3
Rec 365 Leisure & the Aging Process or Arch 412 Environment & Aging or FCS 306 Gerontology 3
Soc 431 Personal & Social Issues in Aging 3
Additional courses selected from the following (if not taken above) or other courses with at least 50% aging content as approved by a co-coordinator or an adviser 9-10
- Arch 412 Environment & Aging
- Arch 498 Internship (3-6 cr)
- Econ 450 The Economics of Health Care
- FCS 306 Gerontology
- FCS 346 Personal & Family Finance & Management (1-2 cr)
- FCS 404 ST: Adult Development (3 cr)
- FCS 498 Internship (3-6 cr)
- FCS correspondence course: Growing Old in a New Age
- H&S 150 Wellness Lifestyles
- H&S 498 Internship in Health/Safety (3-6 cr)
- PEP 201 Fitness Activities & Concepts
- PEP 498 Internship in Physical Education (3-6 cr)
- Rec 365 Leisure & the Aging Process
- Rec 498 Internship in Recreation (3-6 cr)
- Soc 396 Social Work with the Aging
- Soc 498 Internship (3-6 cr)

Department of Agricultural and Extension Education

Lou E. Riesenberg, Dept. Head (Agricultural and Extension Education Bldg., P.O. Box 442020, 1134 West 6th, 83844-2040; phone 208/885-6358; e-mail lriesenb@uidaho.edu; http://aee.ag.uidaho.edu/aee). *Faculty:* Erik T. Anderson, James J. Connors, John P. Mundt, Douglas A. Pals, Lou E. Riesenberg. *Faculty Emeritus:* Maurice E. Johnson. *Affiliate Faculty:* Wayne L. Fanno, Richard L. Ledington.

The mission of the Department of Agricultural and Extension Education includes teaching, research, and service. The specific objectives of the department are: (1) to prepare educators for employment in teaching agriculture and extension programs; (2) to provide service and direction to FFA in Idaho; (3) to provide an opportunity for graduate study in the areas of agricultural and extension education; (4) to assist in providing inservice education for agricultural educators in Idaho; (5) to provide service to related agencies and organizations for the support of education and the development of human resources; (6) to conduct quality research in agricultural and extension education; (7) to assist in maintaining viable agricultural education programs; and (8) to assist in the development of information and instructional materials for the support of agricultural educators and extension personnel.

Courses in animal science, agricultural economics, agricultural mechanics, entomological science, plant science, and soil science will prepare graduates to teach these areas as secondary agriculture instructors and develop educational programs as county extension faculty. The agricultural education curriculum is approved by the State Board for Professional-

Technical Education. Graduates who have completed a minimum of 28 credits in agricultural education and who meet the state certification requirements for a standard secondary teaching certificate are qualified to teach secondary agriculture. Students must be admitted to the Teacher Education Program, which requires a grade-point average of at least 2.50, before being allowed to enroll in upper-division teacher education courses and participate in student teaching. In addition, government and agribusiness agencies that seek persons with training in agriculture and education provide employment opportunities for graduates of this curriculum. Courses provide students an opportunity to develop employment opportunities in teaching agriculture, cooperative extension, and agribusiness occupations.

The department provides opportunities for professional growth and development to agricultural educators through a planned program of graduate study. The pursuit of an M.S. degree allows for the development of problem-solving skills through scientific investigation of appropriate research topics. Graduate work in agricultural and extension education is offered with the opportunity for students to elect options in agricultural sciences, extension education, professional-technical teacher education, international agricultural education, or other areas that parallel their career goals. Because of the diversity of research efforts by departmental faculty members, a graduate student has a wide variety of specializations from which to choose a thesis topic. Students with this degree are well prepared to move into a job market or to pursue a Ph.D. program at another institution.

Admission to a graduate program requires an undergraduate degree with a major in agricultural education or a closely related field. The department may require the Graduate Record Examination if there is insufficient information available to indicate that the student will be successful in graduate work.

The department welcomes inquiries about its programs and suggests that anyone interested in possible pursuit of a degree in agricultural and extension education should contact the department (telephone 208/885-6358).

Courses

See part 6 for courses in Agricultural Education (AgEd) and Agricultural Science and Technology (Ag).

Undergraduate Curricular Requirements

AGRICULTURAL EDUCATION (B.S.Ag.Ed.)

Required course work includes the university requirements (see regulation J-3) and one of the following options:

A. TEACHING OPTION

The following option is approved by the State Board of Professional-Technical Education for the preparation of high school agriculture instructors. Graduates who have completed at least 28 credits in agricultural education, and who meet the state certification requirements for a Standard Secondary Teaching Certificate, are eligible to teach secondary agricultural science and technology in Idaho. In addition, government and business agencies and the Cooperative Extension System that seek persons with education in both agriculture and education provide employment opportunities for graduates of this curriculum.

AgEd 180 Introduction to Agricultural Education 1
AgEd 351 Principles & Philosophy of Professional-Technical Education 3
AgEd 358 Supervising FFA & SAE Programs 2
AgEd 452 Methods of Teaching Agriculture 3
AgEd 453 Program Planning in Secondary & Adult Ag Education 3
AgEd 454 Facilities Organization & Management 2
AgEd 460 Practicum: Secondary School Teaching in Agriculture 10
AgEd 461 Student Teaching Portfolio 2
AgEd 470 Proseminar in Agricultural Education 2
ACTE 460 Using Internet-Based Career Information in the Classroom 2
ASM 107 Beginning Welding 2
ASM 202 Agricultural Shop Practices 2
ASM 210 Small Engines 2
Comm 101 Fundamentals of Public Speaking 2
ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
ED 312 Educational Psychology 2
ED 313 Educational Measurement 1
EDTE 463 Literacy Methods for Content Learning 3
Engl 313 Business Writing or 317 Technical & Engineering Report Writing or 207 Persuasive Writing or 209 Inquiry-Based Writing 3
Math 137 Algebra with Applications or 130 Finite Math 3
Computer applications course or Idaho Technology Certification 3
Ag electives, incl a minimum of 6 cr in ag econ, 6 cr in animal sc, 6 cr in plant sc, 3 cr in horticulture, and 4 cr in soils 40
Natural and applied science electives, incl 4 cr in chem and Biol 100 or 201 16
Humanities and social sc electives, incl Econ 202 and Psyc 101 14
Electives to total 132 cr for the degree ..... —

B. NONTEACHING OPTION

The nonteaching option is designed for students who desire a career in non-formal instruction, human resources development, and training in the food, fiber, and natural resource system. Graduates of this program will have a strong foundation in adult education, communications, and presentation and communications skills.

Agricultural education electives chosen from the following 20
- AgEd 180 Introduction to Agricultural Education (1 cr)
- AgEd 181 Introduction to Extension Education (1 cr)
- AgEd 404 ST: Developing Agricultural Organizations (1 cr)
- AgEd 404 ST: Parliamentary Procedure in Organizations (1 cr)
- AgEd 448 Principles & Practices of Extension Education (3 cr)
- AgEd 450 Developing Leaders (2 cr)
- AgEd 451 Communicating in Agriculture (2 cr)
- AgEd 452 Methods of Teaching Agriculture (3 cr)
- AgEd 459 Cooperative Extension Practicum (max 9 cr) or AgEd 498 Internship (max 10 cr)

Adult education electives chosen from the following 6
- AdEd 418 Learning Styles (3 cr)
- AdEd 428 Program Development in Adult Education (3 cr)
- AdEd 473 Foundations of Adult Education (3 cr)
- AdEd 474 The Adult Learner (3 cr)
- AdEd 476 Communication Skills for Teachers of Adults (3 cr)

Communications electives chosen from the following 6
- Comm 235 Organizational Communication (3 cr)
- Comm 284 Experiences in Visual Thinking (3 cr)
- Comm 332 Communication & the Small Group (3 cr)
- Comm 333 Interviewing (3 cr)
- Comm 422 Science Communication (3 cr)
- Comm 425 Feature Article Writing (3 cr)

Business and accounting electives chosen from the following 6
- Acct 201 Introduction to Financial Accounting (3 cr)
- Bus 311 Introduction to Management (3 cr)
- Bus 321 Marketing (3 cr)
- BLaw 265 Legal Environment of Business (3 cr)

Comm 101 Fundamentals of Public Speaking 2
Comm 431 Professional Presentation Techniques 3
Engl 313 Business Writing 3
Math 130 Finite Mathematics or 137 Algebra with Applications or 143 Pre-calculus Algebra & Analytic Geometry 3
Computer applications course 3
Natural and applied science electives 16
Humanities and social science electives 14
Foreign language electives (a maximum of 8 cr of foreign language can be completed in lieu of 8 credits of technical subject matter courses with departmental approval) 8
Technical subject matter courses (including courses from any of the following instruction areas: agricultural economics; agricultural systems management, animal and veterinary science, family and consumer sciences; plant, soil, and entomological sciences; food science and toxicology) 36
Electives to total 128 cr for the degree ..... —

AGRICULTURAL SCIENCE AND TECHNOLOGY (B.S.Ag.Sc.Tech.)

The agricultural science and technology major is designed for students interested in a broad education with emphasis on agriculture. The curriculum's flexibility enables students to prepare for careers in general farming/ranching or entry-level positions in agricultural industry and agribusiness. Students who have not decided on a major in agriculture may enroll in this curriculum and take courses in a number of departments to decide on a departmental major. Those who start in this curriculum will be informed of the requirements in other majors and plan course selections to avoid loss of time if they transfer to another major. Note: No student may become a candidate for the B.S.Ag.Sc.Tech. degree who has already earned a degree in the College of Agriculture or who is a candidate for another degree offered by the college.

Required course work includes the university requirements (see regulation J-3) and:

Ag 200 Seminar 1
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 289 Agricultural Markets & Prices 3
AgEc 356 Agricultural Programs & Policies or 361 Farm & Natural Resource Appraisal 3
AgEc 391 Agribusiness Management 3
Acct 201 Introduction to Financial Accounting 3
Biol 100 Intro to Biology or 201 Intro to the Life Sciences 4
Chem 101 Intro to Chemistry I or 111 Principles of Chemistry 4
Comm 101 Fundamentals of Public Speaking 2
Engl 207 Persuasive Writing or 209 Inquiry-Based Writing or 313 Business Writing or 317 Technical & Engineering Report Writing 3
Math 137 Algebra with Applications or 143 Pre-calculus Algebra & Analytic Geometry or 160 Survey of Calculus I 3-4
MMBB 154, 155 Introductory Biology of Bacteria & Viruses & Lab or 250 General Microbiology 4-5
Phys 100 Fundamentals of Physics or Phys 111 General Physics I or Chem 112 Principles of Chemistry II 4
Stat 150 Intro to Statistics or 251 Principles of Statistics 3
Computer proficiency/literacy/applications course 3
Humanities and social sciences electives, including Econ 202 14
Agricultural science and technology courses chosen from at least three of the following areas 30

Agricultural Education (minimum of two courses) (4-5 cr)
- AgEd 404 ST:Exploring International Agriculture
- AgEd 448 Principles & Practices of Extension Education
- AgEd 450 Developing Leaders
- AgEd 451 Communicating in Agriculture

Agricultural Systems Management (minimum of two courses) (5-6 cr)
- ASM 305 Agricultural Machinery Systems
- ASM 315 Irrigation Systems & Water Management*
- ASM 331 Electric Power Systems for Agriculture
- ASM 412 Agricultural Safety & Health

Animal Science (minimum of two courses, one 300-level and one 400-level) (6-7 cr)
- AVS 330 Genetics of Farm Animals *
- AVS 363 Animal Product for Human Consumption
- AVS 371 Anatomy & Physiology
- AVS 472 Dairy Cattle Management*
- AVS 474 Beef Cattle Science*
- AVS 476 Sheep Science *
- AVS 478 Swine Production*

Crop Production/Management (minimum of three courses) (9 cr)
- Ent 322 Economic Entomology
- PlSc 338 Weed Control*
- PlSc 405 Plant Pathology*
- PlSc 407 Field Crop Production
- Soil 438 Pesticides in the Environment*
- Soil 446 Soil Fertility*

Additional agricultural science/technical electives 7
Electives to total 132 cr for the degree ..... —

*Course requires additional prerequisites not listed.

Academic Minor Requirements

AGRICULTURAL EXTENSION EDUCATION MINOR

AgEd 180 Introduction to Agricultural Education 1
AgEd 181 Introduction to Extension Education 1
AgEd 359 Developing 4-H Youth Programs 1
AgEd 448 Principles & Practices of Extension Education 3
AgEd 452 Methods of Teaching Agriculture 3
AgEd 459 Cooperative Extension Practicum 9

Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Agricultural and Extension Education. See the College of Graduate Studies section of part 4 for the general requirements applicable to the M.S. degree.

Both thesis and nonthesis options are offered. The M.S. (nonthesis) is a terminal program designed to provide a broader preparation than the M.S. with thesis. Of the minimum of 30 credits required under the nonthesis option, at least 18 must be in courses at the 500s level and the remainder may include 400s level courses in the majors and 300s and 400s level courses in supporting areas. A professional paper is optional at the discretion of the candidate's supervisory committee. A comprehensive examination is required which may be written and/or oral.

Department of Agricultural Economics and Rural Sociology

Russell V. Withers, Interim Dept. Head (39A Iddings Wing, Ag. Sc. Bldg. 83844-2334; phone 208/885-6264; e-mail rwithers@uidaho.edu). ***Faculty:*** **Ahmed A. Araji, Robert D. Carver, Stephen C. Cooke, Stephen Devadoss, John C. Foltz, C. Wilson Gray, Joseph F. Guenthner, Joel R. Hamilton, Aaron J. Harp, James R. Jones, LeRoy D. Luft, Larry D. Makus, Christopher S. McIntosh, Neil L. Meyer, James R. Nelson, Paul E. Patterson, Neil R. Rimbey, R. Garth Taylor, David J. Walker.**

Agricultural economics is an applied branch of economics. It is a social science that deals with economic problems in agriculture, the food industry, rural communities, and the use and conservation of our natural resources. Economic principles and theories are used to determine maximum economic efficiency in the production and marketing of agricultural commodities and in the use of natural resources.

The agricultural economics program prepares students to address problems faced by farmers and ranchers, agricultural marketing and supply companies, natural resource agencies, and rural communities. The department offers the degree of Bachelor of Science in Agricultural Economics with majors in agribusiness, agricultural economics, and natural resources and rural development. Areas of study within the majors include agricultural finance, agricultural policy, marketing, farm and ranch management, rural community development, international trade and development, economic use of natural resources, and management of agribusiness firms.

The agribusiness major prepares students in the management functions of farms, ranches, and businesses involved with the production and marketing of farm commodities and farm production inputs. The agricultural economics major prepares students to become professional economists for commercial agricultural firms and governmental agencies or to pursue advanced degrees in this field before entering the profession. Students completing the natural resources and rural development major are prepared to enter private industry and public agencies that deal with economic analysis of natural resource use and rural development problems.

Graduate training in agricultural economics encompasses commercial agriculture, natural resources, and rural development economics. Agricultural development and international trade are also emphasized.

The commercial agriculture area includes the economics of production and distribution, agribusiness management, and agricultural policy. Natural resource economics involves the evaluation of alternative uses of such resources as land (including resources obtained from land), air, and water. Rural development encompasses the economics of off-farm migration, rural education and services, community development, rural taxation, and low income and employment problems.

Students initiating graduate work in agricultural economics should have a background in economics and quantitative methods. The following specific course areas are recommended: economic principles, six credits; intermediate microeconomics, three credits; statistics, three credits; mathematics, through introductory calculus; applied economics and/or agricultural economics, nine credits. Individual graduate programs are tailored to allow students to take courses and develop thesis proposals in line with their professional interests.

The department welcomes inquiries about its program and suggests that anyone interested in possible pursuit of a degree in agricultural economics should contact the department (telephone 208/885-6264) or visit the website at http://www.uidaho.edu/ag/agecon.

Courses

See part 6 for courses in Agricultural Economics (AgEc).

Undergraduate Curricular Requirements

The agricultural economics area has three programs designed to prepare students for careers in the agricultural economics profession. The agribusiness major provides students with training related to management, finance, and marketing in the agribusiness sector. The agricultural economics major provides students with the theory behind decisions concerning agricultural production, marketing, resource use, pricing, and policy. The natural resources and rural development major provides understanding of the economics of pricing, public policy, and management of natural resources and community and human resources in rural society. Students in this major may elect courses in supporting fields for a focus in natural resource economics or in rural development economics. Each of these majors prepares students to pursue advanced degrees if they choose.

CORE COURSES FOR B.S.AG.ECON.

AgEc 101 Agricultural Economics & Agribusiness 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 356 Agricultural Programs & Policies 3
Biol 100 Intro to Biology or 201 Intro to Life Sciences or
MMBB 250 General Microbiology 4-5
Chem 101 Introduction to Chemistry I or 111 Principles of Chemistry I 4
Comm 101 Fundamentals of Public Speaking 2
CS 112 Introduction to Problem Solving & Programming or
ASM 240 Computer Applications in Biological Systems 3
Econ 201, 202 Principles of Economics (may not also be used to satisfy the
core requirements in regulation J-3-d) 6
Econ 352 Intermediate Microeconomic Analysis 3
Engl 317 Technical & Engineering Report Writing 3
Stat 251 Principles of Statistics 3
Humanities and social sciences (at least 6 cr of each; may not include Econ 201-202) . 14

AGRICULTURAL ECONOMICS (B.S.Ag.Econ.)

Required course work includes the university requirements (see regulation J-3), the agricultural economics core, and:

AgEc 289 Agricultural Markets & Prices 3
AgEc 453 Agricultural Price Analysis 3
AgEc 481 Agricultural Markets in a Global Economy 3
AgEc 493 Agricultural Production Economics 3
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
Econ 351 Intermediate Macroeconomic Analysis 3
Math 170 Analytic Geometry & Calculus I 4
Math, stat, or CS electives above the specific requirements 3-4
Agricultural economics electives 3
Economics electives 6
Technical agriculture electives 12
Electives to total 132 cr for the degree ..... —

AGRIBUSINESS (B.S.Ag.Econ.)

Required course work includes the university requirements (see regulation J-3), the agricultural economics core, and:

AgEc 289 Agricultural Markets & Prices 3
AgEc 391 Agribusiness Management 3
AgEc 394 Analytical Techniques in Agribusiness & Economics 3
Two of the following courses 6
AgEc 453 Agricultural Price Analysis
AgEc 467 Economics of Rural Community Development
AgEc 481 Agricultural Markets in a Global Economy
AgEc 493 Agricultural Production Economics
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
Acct 381 Accounting for Managers & Investors 3
BLaw 265 Legal Environment of Business 3
Bus 413 Organizational Behavior 3
Math 160 Survey of Calculus or 170 Analytic Geom & Calc I 4
Math, stat, or CS electives above the specific requirements 3-4
Agricultural economics electives 3
Ag economics, economics, business, or accounting electives 3
Technical agriculture electives 12
Electives to total 132 cr for the degree ..... —

NATURAL RESOURCES AND RURAL DEVELOPMENT (B.S.Ag.Econ.)

Required course work includes the university requirements (see regulation J-3), the agricultural economics core, and:

AgEc 451 Land & Natural Resource Economics
or 467 Economics of Rural Community Development 3
AgEc 493 Agricultural Production Economics 3
Econ 351 Intermediate Macroeconomic Analysis 3
Econ 385 Environmental Economics 3
Econ 430 Regional/Urban Economics 3
Math 170 Analytic Geometry & Calculus I 4
PolS 275 American State & Local Government 3
Agricultural economics electives (select from
AgEc 289, 332, 361, 394, 451, and 467) 9
Math, stat, or CS electives above the specific requirements 3-4
Supporting field electives (see list in dept office) 18
Electives to total 132 cr for the degree ..... —

Academic Minor Requirements

AGRICULTURAL ECONOMICS MINOR

AgEc 101 Agricultural Economics & Agribusiness 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 289 Agricultural Markets & Prices 3
AgEc 332 Econ of Ag Development or 356 Ag Programs & Policies 3
Two of the following courses 6
- AgEc 453 Agricultural Price Analysis
- AgEc 481 Agricultural Markets in a Global Economy
- AgEc 493 Agricultural Production Economics

AGRIBUSINESS MINOR

AgEc 101 Agricultural Economics & Agribusiness 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 289 Agricultural Markets & Prices 3
AgEc 394 Analytical Techniques in Agribusiness & Economics or
453 Ag Price Analysis or 481 Ag Markets in a Global Economy 3
Two of the following courses 6
- AgEc 356 Agricultural Programs & Policies
- AgEc 361 Farm & Natural Resource Appraisal
- AgEc 391 Agribusiness Management

NATURAL RESOURCE ECONOMICS AND COMMUNITY DEVELOPMENT MINOR

AgEc 101 Agricultural Economics & Agribusiness 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 356 Agricultural Programs & Policies 3
AgEc 451 Land & Natural Resource Economics or
467 Economics of Rural Community Development 3
Two of the following courses 6
- AgEc 332 Economics of Agricultural Development
- AgEc 361 Farm & Natural Resource Appraisal
- AgEc 383 Economics for Natural Resource Managers

Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Agricultural Economics and Rural Sociology. See the College of Graduate Studies section of part 4 for the applicable general requirements.

The M.S. program in agricultural economics is designed to prepare students for management, research, and policy positions in the public and private sectors of the economy, and for further graduate study. Specific departmental requirements for the thesis option include 24 credits of course work including the following: AgEc 507; AgEc 509; AgEc 510; AgEc 525; and two courses selected from AgEc 528, AgEc 524, and AgEc 551. In addition to the 24 credits of course work, six thesis credits (AgEc 500) are normally used to complete the total of 30 credits required by the College of Graduate Studies. Students may take a nonthesis option M.S. degree. Under this option a student will take a minimum of 27 credits of course work including departmental course requirements. In addition, a three-credit paper will be written and presented by the student addressing a topic determined jointly by the student and the student's graduate committee. This option is directed at students not receiving financial support from research funds.

Program in American Indian Studies

Rodney P. Frey, Acting Coordinator (116 Phinney Hall 83844-1110; phone 208/885-6268; rfrey@uidaho.edu; http://www.uidaho.edu/~rfrey/indianminor.htm). *Faculty:* Rodney P. Frey, Georgia Johnson, Patricia Riley, R. Lee Sappington, Debbie A. Storrs, William R. Swagerty.

The American Indian Studies minor is based on the following objectives: (1) *recruitment and retention*—enhance the recruitment and retention of Indian students, as well as other students of ethnic heritage, attending and graduating from UI; (2) *intercultural communication*—provide an opportunity for face-to-face Indian/non-Indian exchange of ideas, perceptions, and misperceptions about Indian and Euro-American culture, including a meaningful context for intercultural communications and understanding, and solution of problems of bias and stereotyping; (3) *cultural appreciation*—foster a better understanding of and appreciation for the vitality, breadth, depth, and rich diversity of components of contemporary Indian cultures (e.g., arts, economics, literature, government, and social and religious life), as well as their histories; (4) *rigorous curriculum with an interdisciplinary approach*—enable students to acquire the knowledge, critical methods, and research skills of the academic fields that comprise the minor, including but not limited to anthropology, English, history, sociology, and teacher education; (5) *application*—provide an Indian pedagogy and knowledge base, i.e., an Indian perspective, that would complement and be integrated with students' other academic fields of study (e.g., business, education, engineering, forestry and natural resources, health care, humanities, or social sciences), better preparing students with the skills and expertise to address and successfully meet the various issues and challenges faced in Indian communities; (6) *collaboration*—build partnership relationships between UI and regional tribes (Idaho and adjacent western states), especially the Coeur d'Alene and Nez Perce Tribes, improving communications, educational delivery, the sharing of expertise, and ability to address common concerns and problems; (7) *institutional growth*—advance the concerns and issues faced in Indian communities, as well as an Indian pedagogical and knowledge perspective within the university and academic communities; and (8) *inclusivity*—serve both Indian and non-Indian students and communities alike.

Courses

See part 6 for courses in American Indian Studies (AIST).

Academic Minor Requirements

AMERICAN INDIAN STUDIES MINOR

AIST 401 Contemporary American Indian Issues 3
AmSt 201 Introduction to Ethnic Studies 3
Anth 329 North American Indians 3
Engl 484 American Indian Literature 3
Hist 431 History of Indian-White Relations 3
Elective courses selected from the following 6
- AIST 404 Special Topics (3 cr)
- AIST 495 Practicum (cr arr)
- AIST 498 Internship (cr arr)
- AIST 499 Directed Study (cr arr)
- Anth 422 Plateau Indians (3 cr)
- Anth 436 North American Prehistory (3 cr)
- Anth 443 Plateau Prehistory (3 cr)
- EDTE 404 ST:American Indian Education (3 cr)
- Hist 313 Red, White, and Black: The Peopling of Early America (3 cr)
- Hist 404 ST:The Nez Perce: Then and Now (3 cr)
- Soc 323 Race and Ethnic Relations (3 cr)

Program in American Studies

Walter A. Hesford, Coordinator (121 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6941); Sheila O'Brien and Mary H. DuPree, Co-coordinators. *Faculty:* Katherine G. Aiken, Roy A. Atwood, Anna Banks, David S. Barber, Donald W. Crowley, Mary H. DuPree, Rodney P. Frey, Shaikh M. Ghazanfar, Dale T. Graden, H. Lynne Haagensen, Sandra Haarsager, Patricia Hart, Walter A. Hesford, Eric L. Jensen, Harley E. Johansen, Georgia Johnson, William R. Lund, John Mihelich, Sheila O'Brien, D. Nels Reese, Patricia Riley, Debbie A. Storrs, William R. Swagerty, Margrit von Braun, Mark S. Warner, Dennis D. West, Gary Williams.

Courses

See part 6 for courses in American Studies (AmSt).

Curricular Requirements

AMERICAN STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), general L&S requirements for the B.A. degree, and:

1. Nine credits in courses offered specifically for students in the American Studies program, including AmSt 301, Interpreting America (normally, one course each semester will be offered—see adviser); and

2. Completion of one of the following major areas of emphasis:

A. LITERATURE EMPHASIS

Engl 343-344 Survey of American Literature 6
Two courses in English literature 6
Courses selected from the following list 15
- Engl 380 Introduction to U.S. Ethnic Literature
- Engl 427 American Fiction, 1914-1945
- Engl 429 Contemporary Fiction
- Engl 439 Modern English & American Drama
- Engl 441 Introduction to the Study of Language
- Engl 470 American Literature to 1830
- Engl 471 Poe, Hawthorne, & Melville
- Engl 472 Emerson, Thoreau, & Whitman
- Engl 473 Literature of the American West
- Engl 474 American Literature, 1865-1914
- Engl 480 Ethnic & Minority Literature
- Engl 483 Black Literature
- Engl 484 American Indian Literature

Courses in history and social science, incl at least 6 cr in each
(selected from courses listed under the social sc emphasis
and from upper-div courses listed under the history emphasis) 18

B. HISTORY EMPHASIS

Hist 101-102 History of Civilization 6
Hist 111-112 Introduction to U.S. History 6
Five courses selected from the following list 15
- Art 302 History of Art: 20th Century
- Comm 384 History of American Film
- Hist 313 Red, White & Black: The Peopling of Earth North America
- Hist 315 Modern African-American Culture
- Hist 411 Colonial North America, 1492-1763
- Hist 412 Revolutionary North America & Early National Period, 1763-1828
- Hist 415 Civil War & Reconstruction, 1828-1877
- Hist 417 United States, 1900-1945
- Hist 418 Recent America, 1945-Present
- Hist 420 History of Women in American Society
- Hist 423 Idaho & the Pacific Northwest
- Hist 424 American Environmental History
- Hist 428 History of the American West
- Hist 431 History of Indian-White Relations
- Hist 441 Comparative Slavery & Emancipation in the Atlantic World
- MusH 440 Studies in American Music

Courses in literature and social science, incl at least 6 cr in each (selected from courses listed under the social sc emphasis and the following lit courses) 18
- Engl 343-344 Survey of American Literature
- Engl 427 American Fiction, 1914-1945
- Engl 470 American Literature to 1830
- Engl 471 Poe, Hawthorne, & Melville
- Engl 472 Emerson, Thoreau, & Whitman
- Engl 473 Literature of the American West
- Engl 474 American Literature, 1865-1914
- Engl 483 Black Literature
- Engl 484 American Indian Literature

C. SOCIAL SCIENCE EMPHASIS

Anth 329 North American Indians or Hist 431 Hist of Indian-White Relations 3
Econ 201, 202 Principles of Econ or 272 Foundations of Econ Analysis 4-6
Geog 240 Economic Geography 3
PolS 235 Political Research Methods & Approaches 3
Soc 230 Social Problems 3
Soc 322 Racial & Ethnic Relations 3
Stat 251 Principles of Statistics 3
Courses selected from the following list 12
- AgEc 467 Economics of Rural Community Development
- AmSt 201 Introduction to Ethnic Studies
- Anth 100 Introduction to Anthropology
- Anth 422 Plateau Indians
- Anth 431 Historical Archaeology
- Anth 436 North American Prehistory
- Anth 443 Plateau Prehistory
- Arch 483 Urban Theory & Issues
- Arch 486 American Architecture
- Comm 111 Introduction to Communication Studies
- Comm 384 History of American Film
- Comm 386 Documentary Film/Television
- Comm 444 Communication & Public Opinion
- Comm 445 History of Mass Communication
- Dan 421 Dance History
- Econ 345 American Economic Development
- Econ 385 Environmental Economics
- Econ 407 Public Finance
- Econ 408 State & Local Government Finance
- Econ 441 Labor Economics
- Geog 165 Human Geography
- Geog 330 Urban Geography
- Geog 360 Population Dynamics & Distribution
- MusH 440 Studies in American Music
- Phil 430 Social & Political Philosophy
- PolS 275 American State & Local Government
- PolS 431 American Political Parties & Elections
- PolS 432 American Congress
- PolS 433 American Political Culture
- PolS 437 American Presidency
- PolS 438 Conduct of American Foreign Policy
- PolS 460 Law & Society
- PolS 467 Constitutional Law
- PolS 468 Civil Liberties
- Soc 101 Introduction to Sociology
- Soc 313 Collective Behavior
- Soc 323 Social Stratification
- Soc 324 Sociology of Gender
- Soc 325 Sociology of the Family
- Soc 414 Development of Social Theory

Four courses in literature and history, incl at least 3 cr in each (selected from the following list) 12
- Engl 343-344 Survey of American Literature
- Engl 380 Introduction to U.S. Ethnic Literature
- Engl 427 American Fiction, 1914-1945
- Engl 429 Contemporary Fiction
- Engl 470 American Literature to 1830
- Engl 471 Poe, Hawthorne, & Melville
- Engl 472 Emerson, Thoreau, & Whitman
- Engl 473 Literature of the American West
- Engl 474 American Literature, 1865-1914
- Engl 483 Black Literature
- Engl 484 American Indian Literature
- Hist 313 Red, White, & Black: The Peopling of Early North America
- Hist 315 Modern African-American Culture
- Hist 417 United States, 1900-1945
- Hist 418 Recent America, 1945-Present
- Hist 424 American Environmental History
- Hist 431 History of Indian-White Relations

Academic Minor Requirements

AMERICAN STUDIES MINOR

AmSt 301 Interpreting America 3
Six courses numbered 300 or above, chosen from the emphasis lists under the American Studies major 18
Note: No course used toward an American Studies minor may also be used toward any major.

Department of Animal and Veterinary Science

Richard A. Battaglia, Dept. Head (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; e-mail dwillis@uidaho.edu). *Faculty:* Bruce C. Anderson, Richard A. Battaglia, Ernest L. Brannon, Marie S. Bulgin, Susan K. Duckett, James J. England, Dean E. Falk, Dennis G. Falk, Ronald W. Hardy, Dan D. Hinman, Alexander Hristov, Carl W. Hunt, Mark L. Kinsel, Mark A. McGuire, John C. Miller, Patrick A. Momont, Richard J. Norell, Troy L. Ott, Ronald P. Richard, Richard A. Roeder, William K. Sanchez, Gerald T. Schelling, Dirk K. Vanderwall, Alton C. S. Ward, Brad K. Williams, Gordon L. Woods, Jerry L. Zaugg.

Animal agriculture has a major role in providing the supply of high quality food, not only for the people of the United States, but also for those of other nations. Food and fiber obtained from animals include meat, milk, eggs, wool, and many by-products. Knowledge and skills resulting from a college education in this field will permit the graduate to contribute to improved production and health of the nation's livestock including beef, sheep, dairy, swine, poultry, horses, and companion animals.

In addition to classrooms and laboratories located in the Agricultural Science Building, the department's facilities include production centers for dairy, beef, and sheep, as well as a meats laboratory and livestock judging pavilion. Several breeds of animals are maintained for instructional purposes. The academic program is designed to prepare students for a variety of important and rewarding career opportunities. For more specific information, get in touch with the department head (208/885-6345).

To prepare students for the varied types of occupations available in animal agriculture, the Department of Animal and Veterinary Science offers a bachelor of science degree in animal science with three majors: animal science-production, dairy science, and agribusiness, a bachelor of science degree in range livestock management, and a bachelor of science degree in science/preveterinary. Each of these majors, while attempting to provide the students with a sound background in animal biology, has its separate emphasis on complementary academic training. One of the strongest features of these programs is the flexibility provided. Each major permits the student to plan the precise course of study that will best prepare him or her for the area of work that he or she desires to enter. The department also offers a minor in animal science for students desiring a background in animal agriculture to complement their major field of study.

The major in **animal science-production** is designed for students who desire to pursue a career in livestock production, graduate work in one of the varied disciplines in animal sciences (nutrition, breeding, physiology, growth, endocrinology, meats, etc.), or for employment by companies that require intensive training in animal biology. This major is also excellent training for those interested in Cooperative Extension.

A major in **dairy science** helps prepare students for careers in one of Idaho's fastest growing industries. This major offers introductory and advanced course work and "hands on training" at a modern dairy center. Specific courses are taught in dairy nutrition, forage crops, dairy reproduction and physiology, dairy cattle evaluation, dairy products and processing, physiology of lactation, herd health management, agriculture power and machines, and farm management. Students are eligible to participate in the cooperative of university dairy students (CUDS) program.

The major in **range livestock management** attempts to provide, in addition to intensive training in animal biology, a sound background in the relationship between animals and plants. To this end the student receives training in range management, forage crop production, and soils. This major is designed for students who desire to pursue a career in range livestock production or employment with companies or agencies that deal with the production and management of livestock on western ranges. Opportunities also exist for students to pursue graduate work in the areas of forage utilization and related fields.

The **agribusiness** major is designed for students who desire a career as entry level into management positions in livestock-related industries. This major is oriented toward business, economics, and agricultural economics, in addition to a sound background in production animal agriculture. With appropriate choices of elective courses, students can also prepare themselves for positions with financial institutions involved with the animal agriculture industry.

A **science/preveterinary** major is offered for students interesting in proceeding to veterinary school or a graduate program involving any of the disciplines of animal biology. If, after successful completion of 99 credits of required courses, a student with this degree major is admitted to a recognized college of veterinary medicine, and completes the first year of veterinary school (equivalent of at least 33 credits), that first year will constitute the senior year toward the degree of B.S.Vet.Sc. at UI. Alternatively, students may obtain this degree by completing the final 33 credits at UI.

The department offers **graduate programs** leading to the Master of Science degree with a major in animal or veterinary science and a Doctor of Philosophy degree with a major in animal physiology. The department offers areas of specialization in nutrition, reproductive physiology, embryo physiology, animal growth and development, meat science, and animal diseases with orientation towards beef cattle, dairy cattle, horses, sheep, and fish. The department also participates in university interdisciplinary programs in reproductive biology, and molecular and agricultural genetic engineering.

Graduate work in the department is designed to prepare the student for work in research, extension, teaching, and industry. Thesis projects are diverse in scope and range in design from studying very fundamental biological questions to application of scientific knowledge to animal production and management. Facilities available for graduate student research include herds and flocks of major livestock breeds, ruminant nutrition and physiology laboratories, biomedical research laboratories, a university-operated dairy, meat science laboratory, and a 500-head experimental feedlot. Active cooperation is maintained with federal research agencies located on and off campus.

Graduate student assistantships are available on a competitive basis each year. Inquiries should be directed to the department's graduate program coordinator.

Courses

See part 6 for courses in Animal and Veterinary Science (AVS) and Veterinary Science (VS).

Undergraduate Curricular Requirements

AGRIBUSINESS (B.S.An.Sc.)

The agribusiness major with its dual emphasis on animal science and business is designed for students who want to enter management positions in livestock-related industries.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal & Veterinary Orientation 2
AVS 109 The Science of Animals that Serve Humanity 3
AVS 172, 174, 176, or 178 Species Practicum 1
AVS 222 Animal Reproduction & Breeding 4
AVS 305 Animal Nutrition 4
AVS 306 Feeds & Ration Formulation 4
AVS 363 Animal Products for Human Consumption 3
AVS 371 Anatomy & Physiology 4
AVS 450 Issues in Animal Agriculture 1
AVS 452 Physiology of Reproduction 4
Two of the following courses 6
  AVS 466 Horse Production
  AVS 472 Dairy Cattle Management
  AVS 474 Beef Cattle Science
  AVS 476 Sheep Science
  AVS 478 Swine Science
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
AgEc 101 Agricultural Economics & Agribusiness 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 289 Agricultural Markets & Prices 3
AgEc 394 Analytical Techniques in Agribusiness & Economics or 453
  Ag Price Analysis or 481 Ag Markets in a Global Economy 3
Two of the following courses 6
  AgEc 332 Economics of Agricultural Development
  AgEc 361 Farm & Natural Resource Appraisal
  AgEc 383 Economics for Natural Resource Managers
ASM 240 Computer Applications in Biological Systems 3
Biol 201 Introduction to the Life Sciences 4
BLaw 265 Legal Environment of Business 3
Chem 111 Principles of Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
Stat 251 Principles of Statistics 3
Business electives 6
Electives to total 132 cr for the degree ..... —

ANIMAL SCIENCE - PRODUCTION (B.S.An.Sc.)

The animal science major prepares students to pursue a career in livestock production, for graduate study in any of the varied disciplines in animal science, or for employment that requires intensive training in animal biology.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal & Veterinary Orientation 2
AVS 109 The Science of Animals that Serve Humanity 3
AVS 172, 174, 176, or 178 Species Practicum 1
AVS 222 Animal Reproduction & Breeding 4
AVS 305 Animal Nutrition 4
AVS 306 Feeds & Ration Formulation 4
AVS 330 Genetics of Farm Animals 3
AVS 363 Animal Products for Human Consumption 3
AVS 371 Anatomy & Physiology 4
AVS 450 Issues in Animal Agriculture 1
AVS 452 Physiology of Reproduction 4
Two of the following courses 6
  AVS 466 Horse Production
  AVS 472 Dairy Cattle Management
  AVS 474 Beef Cattle Science
  AVS 476 Sheep Science
  AVS 478 Swine Science
AVS 471 Animal Disease Management 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 289 Agricultural Markets & Prices 3
ASM 240 Computer Applications in Biological Systems 3
Biol 201 Introduction to the Life Sciences 4
Chem 111 Principles of Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
Gene 314 General Genetics 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
MMBB 250 General Microbiology 5
PISc 308 Forage & Grassland Management 3
Rnge 251 Principles of Range Resources Management 2
Stat 251 Principles of Statistics 3
Life science electives 4
Electives to total 132 cr for the degree ..... —

DAIRY SCIENCE (B.S.An.Sc.)

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal & Veterinary Orientation 2
AVS 109 The Science of Animals that Serve Humanity 3
AVS 172 Dairy Cattle Management Lab 1
AVS 222 Animal Reproduction & Breeding 4
AVS 272 Dairy Cattle Traits 2
AVS 305 Animal Nutrition 4
AVS 306 Feeds & Ration Formulation 4
AVS 330 Genetics of Farm Animals 3
AVS 363 Animal Products for Human Consumption 3
AVS 371 Anatomy & Physiology 4
AVS 413 Physiology of Lactation 3
AVS 450 Issues in Animal Agriculture 1
AVS 452 Physiology of Reproduction 4
AVS 472 Dairy Cattle Management 3
AVS 475 Advanced Dairy Management 2
One of the following courses 3
  AVS 466 Horse Production
  AVS 474 Beef Cattle Science
  AVS 476 Sheep Science
  AVS 478 Swine Production
ASM 240 Computer Applications in Biological Systems 3
Biol 201 Introduction to the Life Sciences 4
Chem 111 Principles of Chemistry 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Engl 317 Technical & Engineering Report Writing 3
FST 301 Dairy Products 3
Gene 314 General Genetics 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
MMBB 380, 382 Introductory Biochemistry & Lab 5
PISc 308 Forage & Grassland Management 3
Stat 251 Principles of Statistics 3
Electives to total 132 cr for the degree ..... —

RANGE LIVESTOCK MANAGEMENT (B.S.R.L.M.)

The major in range livestock management provides training in animal science with a sound background in the relationship between animals and plants and is intended for students interested in the management or operation of range and pasture beef cattle or sheep operations.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal & Veterinary Orientation or Rnge 200 Seminar 1-2
AVS 109 The Science of Animals that Serve Humanity 3
AVS 222 Animal Reproduction & Breeding 4
AVS 305 Animal Nutrition 4
AVS 306 Feeds & Ration Formulation 4
AVS 450 Issues in Animal Agriculture 1
AVS 452 Physiology of Reproduction 4
AVS 474 Beef Cattle Science or 476 Sheep Science 3
ASM 240 Computer Applications in Biological Systems (or advanced placement test by department) 3
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Bot 241 Systematic Botany 3
Bot 311 Plant Physiology or PISc 401 Crop Physiology 3-4
Chem 111 Principles of Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Engl 317 Technical & Engineering Report Writing 3
For/RRT 235 Society & Natural Resources 3
Math 143 Pre-calculus Algebra & Analytic Geometry or 160 Survey of Calculus 3-4
PISc 308 Forage & Grassland Management 3
Rnge 221 Natural Resources Ecology 3
Rnge 251 Principles of Range Resources Management 2
Rnge 352 Natural History of Western Rangelands 3
Rnge 354 Wildland Vegetation Management & Restoration 3
Rnge 357 Rangeland & Riparian Habitat Assessment 3
Rnge 430 Riparian Ecology & Management 2
Rnge 456 Integrated Rangeland Management 3
Rnge 459 Rangeland Ecology 3
Soil 205, 206 General Soils & Lab 4
Stat 251 Principles of Statistics 3
Courses selected from the following (a minimum of 3 cr in each college) 8
  AVS 218 Artificial Insemination & Pregnancy Detection (2 cr)
  AVS 263 Live Animal & Carcass Evaluation (3 cr)
  AVS 330 Genetics of Farm Animals (3 cr)
  AVS 371 Anatomy & Physiology (4 cr)
  AVS 411 Microbiology & Physiology of Ruminant Nutrition (3 cr)
  AVS 466 Horse Production (3 cr)
  AVS 476 or 474 (if not taken above) (3 cr)
  Fish/WLF 290 Fish & Wildlife Ecology, Mgt, & Conservation (3 cr)
  For 270 Principles of Forest Ecosystem Mgt (2 cr)
  Rnge 353 Rangeland Plant Identification & Ecology (3 cr)
  Rnge 454 Rangeland Weed Management (3 cr)
  RRT 287 Professional Foundations of Resource Rec & Tourism (3 cr)
Electives to total 132 cr for the degree ..... —

SCIENCE/PREVETERINARY (B.S.Vet.Sc.)

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal & Veterinary Orientation 2
AVS 109 The Science of Animals that Serve Humanity 3
AVS 172, 174, 176, or 178 Species Practicum 1
AVS 305 Animal Nutrition 4
AVS 371 Anatomy & Physiology 4
AVS 452 Physiology of Reproduction 3
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4

Chem 111-112 Principles of Chemistry I-II 8
Chem 277, 278 Organic Chemistry I & Lab 4
Comm 101 Fundamentals of Public Speaking 2
Engl 313 Business Writing or 317 Technical & Engineering Report Writing 3
Gene 314 or Biol 351 General Genetics 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
MMBB 250 General Microbiology 5
MMBB 380 Introductory Biochemistry 4
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
Computer application course 3
First year in veterinary school or the following courses 32
- AVS 306 Feeds & Ration Formulation (4 cr)
- AVS 330 Genetics of Farm Animals (3 cr)
- AVS 450 Issues in Animal Agriculture (1 cr)
- AVS 471, 472, 474, 475, 476, or 478 Species Production (6 cr)
- Biol 353 Introduction to Molecular Biology (3 cr)
- Chem 372 Organic Chemistry II (3 cr)
- Electives (12 cr)

Electives to total 132 cr for the degree ..... —

Academic Minor Requirements

ANIMAL SCIENCE MINOR

AVS 109 The Science of Animals that Serve Humanity 3
AVS 222 Animal Reproduction & Breeding 4
AVS 305 Animal Nutrition 4
AVS 306 Feeds & Ration Formulation 4
AVS 363 Animal Products for Human Consumption 3
AVS 452 Physiology of Reproduction 4
Two of the following 6
- AVS 472 Dairy Cattle Management
- AVS 474 Beef Cattle Science
- AVS 476 Sheep Science
- AVS 478 Swine Science

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Animal and Veterinary Science. See the College of Graduate Studies section of part 4 for the general requirements applicable to all degrees.

Master of Science. The M.S. degree may be earned in either animal science or veterinary science. To qualify for full admission, candidates must fulfill the requirements of the Graduate College and have an overall grade-point average of 3.0 or better (4.0 scale) for their undergraduate study. Acceptance of students not having this minimum grade-point average is possible, subject to recommendation by the department's Graduate Committee. Applicants must submit scores received on the Graduate Record Examination general (aptitude) test.

The M.S. degree requires a minimum of 30 credits, at least 18 of which must be in courses numbered 500 and above. No more than 10 of the 500-level credits may be from research and thesis. Courses at the 300 level in supporting fields may be used as part of the M.S. degree program. All graduate students are required to complete the departmental graduate seminar twice during the degree program. Students are also required to assist with teaching during their graduate training.

Applicants for the M.S. degree program in animal science who have completed their undergraduate program in fields that are not closely related to animal science will be required to complete deficiency courses as determined by the candidate's committee and approved by the department's Graduate Committee. The following are considered essential in an applicant's undergraduate program: chemistry and biochemistry (minimum of 12 credits); calculus; animal nutrition; animal breeding; physiology and/or endocrinology; one products course; and one animal production and management course. Specific animal production courses may be required as determined on an individual candidate basis.

Prospective students for the M.S. degree in veterinary science are expected to have either the D.V.M. degree or equivalent or have completed the requirements for a B.S. degree that was the equivalent of a major in biology, bacteriology, animal science, or other biological science.

Doctor of Philosophy. The Ph.D. degree may be earned in animal physiology. To qualify for admission, candidates must fulfill the requirements of the Graduate College and have an overall grade-point average of 3.25 or better (on a 4.00 scale) for their undergraduate and graduate work. Applicants must submit scores received in the Graduate Record Examination (aptitude test).

Applicants who have completed their previous degrees in fields not closely related to animal and veterinary science may be required to complete deficiencies as determined by the candidate's committee and approved by the department's Graduate Committee.

The Ph.D. degree in animal physiology requires a minimum of 78 credits beyond the B.S. or professional degree, at least 52 credits of which must be in courses numbered 500 and above. Thirty-nine credits of the 78 must be in courses other than AVS 600 (doctoral research and dissertation). Courses at the 300 level may not be used as part of the Ph.D. degree program. Doctoral students are required to complete the departmental graduate seminar each semester it is offered during the degree program. Students are also required to assist with teaching during their graduate training. Doctoral students must demonstrate competence in experimental design and data analysis prior to completion of the degree.

Department of Architecture

Robert M. Baron, Dept. Chair (207 Art and Arch. South 83844-2451; phone 208/885-6781; e-mail arch@uidaho.edu). ***Faculty:*** **Rula Z. Awwad-Rafferty (IA Acting Director), Robert M. Baron, William B. Bowler, Jr., Bruce T. Haglund, Marcia N. Lehman-Kessler, Anne L. Marshall, Wendy R. McClure, Daniel K. Mullin, Gifford Pierce, D. Nels Reese, Jonathan W. Reich, Sandra J. Stannard, Brian F. Sumption, Stephen G. Thurston.** ***Adjunct Faculty:*** **C. Brian Cleveley, Stephen R. Drown.**

The Department of Architecture offers three programs: the professional degree program in architecture (B.S.Arch.-M.Arch.), the interior architecture program (B.F.A.), and the research degree program in architecture (M.A.).

The B.S.Arch.-M.Arch. is a five-year professional degree program accredited by the national Architectural Accrediting Board and is designed to prepare students for a professional career in architecture. The professional program takes five years to complete and includes courses in architectural design, history and theory of architecture, environmental control, structures, materials and methods of construction, urban theory, technical integration, and professional practice. The B.S.Arch. can be completed after fulfilling the requirements of the fourth year. Qualified students may work toward completion of both the B.S.Arch. and M.Arch. requirements during their fourth and fifth years, receiving both degrees upon completion of their studies. They must apply for graduate status after the fourth year (application deadline is February 15). Graduate students must be classified as such at least in their final year.

Transfer students with prior four-year nonprofessional bachelor's degrees in architecture are welcome to apply directly to the M.Arch. program. Based on their transcripts, transfer students may be able to complete the M.Arch. in one year.

Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of preprofessional study following an unrelated bachelor's degree or one or two-year program following a related preprofessional bachelor's degree. These professional degrees are structured to educate those candidates who aspire to registration or licensure as architects.

The four-year, preprofessional degree, where offered, is not accredited by NAAB. The preprofessional degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program, or for employment options in fields related to architecture.

Computer Equipment

Beginning in the fall semester of their junior year, all architecture and interior architecture majors are required to have their own computer and appropriate software for use in their studies.

Courses

See part 6 for courses in Architecture (Arch) and Interior Architecture (IA). See the section on "Fees and Expenses" in Part 2 for the architecture dedicated fee.

Undergraduate Curricular Requirements

ARCHITECTURE (B.S.Arch.)

This is a four-year preprofessional curriculum leading to a B.S.Arch. degree. This is not an accredited professional architectural degree. After the first year of study, academic achievement is reviewed to determine continued eligibility for continued study in architecture. Only students with a 2.5 or higher grade-point average are eligible for study in the second year. Another review is conducted at the end of the second year of study to reduce class size to 45 students. Applicants to the third year are required to submit a portfolio containing examples of graphic work in art and architecture. The portfolio, of no more than 10 pages, should be submitted in an 8-1/2" x 11" format. The submission should also contain a transcript of any college work outside the UI. The deadline for third year applications is May 20. Results of the evaluation are made known to applicants by the end of June.

Students accepted into the final two years of the curriculum are required to maintain a minimum 2.5 GPA and to receive a grade of "C" or higher in architectural design courses. Students who have not been accepted into the third year of the curriculum may not enroll in architectural design courses. Students who have left the program may only re-enter the curriculum by application to the departmental admissions committee.

Required course work includes the university requirements (see regulation J-3) and:

Arch 151 Introduction to the Environmental Design Disciplines 2
Arch 156 Graphic Communication 2
Arch 251 Principles of Architecture 2
Arch 255 Advanced Architectural Graphics 3
Arch 256 Basic Architectural Design 3
Arch 266 Materials & Methods 3
Arch 284 Computer-Aided Design 2
Arch 353-354 Architectural Design I 10
Arch 366 Building Technology I 3
Arch 374 Computer Applications in Architecture 3
Arch 385 History of Architecture I: Pre-Modern 3
Arch 386 History of Architecture II: Modern 3
Arch 453-454 Architectural Design II 10
Five of the following courses 15-17
- Arch 463-464 Environmental Control Systems
- Arch 465-466 Building Technology II
- Arch 475-476 Professional Practice I-II
- Arch 483 Urban Theory & Issues

Art 100 Visual Art 3
Art 111 Drawing I 3
Art 121-122 Visual Communication & the Design Process 6
ForP 365 Wood Building Technology 3
LArc 383 Architectural Site Design 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
Math 160 Survey of Calculus or Phil 202 Intro to Symbolic Logic
or Stat 251 Principles of Statistics or CS 112 Intro to
Problem Solving & Programming 3-4
Phys 111 General Physics I 4
Electives to total 128 cr for the B.S.Arch. degree (including at least 6 cr of
300-level or above courses taken outside the college and 6 cr of 200-level
or above courses taken within the college; credits earned in completion
of an academic minor may be substituted) ..... —

INTERIOR ARCHITECTURE (B.F.A.)

The interior architecture program is a four-year professional program that leads to the professional degree of Bachelor of Fine Arts in interior design. The mission of the program is to serve as Idaho's professional interior architecture/design program by providing a strong interdisciplinary design and visual art culture through a professionally recognized curriculum, allied research, and outreach opportunities, and to prepare graduates to serve society through their professional and community work.

Due to the unique configuration of the College of Art and Architecture, students in the interior architecture program graduate with a major in interior architecture (IA) and a minor in architecture. Students can also minor in other disciplines of their choice. Students also have the option of double majoring in interior architecture and architecture over the period of six years, thus graduating with a B.F.A. in interior design and an M.A. in architecture.

Admission into the program is highly competitive. Students must hold a minimum GPA of 2.50 with a grade of "C" or better in all required IA and Arch courses.

Required course work includes the university requirements (see regulation J-3) and:

IA 151 Interior Architecture 3
IA 152 Interior Architecture I 3
IA 256 Basic Architectural Design 3
IA 281-282 History of the Interior I-II 6
IA 332 Furniture Design & Construction 3
IA 343 Universal Design 2
IA 351-352 Interior Architecture II-III 8
IA 368 Materials & Specifications 3
IA 451-452 Interior Architecture IV-V 10
IA 478 Professional Practices for Interior Design 3
Arch 151 Introduction to the Environmental Design Disciplines 2
Arch 156 Graphic Communication 2
Arch 255 Advanced Architectural Graphics 3
Arch 266 Materials & Methods 3
Arch 284 Computer-Aided Design 2
Arch 374 Computer Applications in Architecture 3
Arch 385 History of Architecture I: Pre-Modern 3
Arch 386 History of Architecture II: Modern 3
Arch 463-464 Environmental Control Systems 8
Arch 475 Professional Practice I 3
Art 100 Visual Art 3
Art 111 Drawing I 3
Art 121-122 Visual Communication & the Design Process 6
FCS 123 Textiles 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
Electives to total 128 cr for the degree (incl 4 cr from
a list of adviser-directed electives) ..... —

Academic Minor Requirements

ARCHITECTURE MINOR

Arch 251 Principles of Architecture 2
Arch 385 History of Architecture I: Pre-Modern 3
Arch 386 History of Architecture II: Modern 3
Courses selected from the following 10
Arch 266 Material & Methods
Arch 463 Environmental Control Systems (3 cr—no lab)
Arch 464 Environmental Control Systems (3 cr—no lab)
Arch 482 Intro to Historic Preservation: Theories & Issues
Arch 483 Urban Theory & Issues
Arch 486 American Architecture
IA 281 History of the Interior I
IA 282 History of the Interior II
LArc 383 Architectural Site Design

INTERIOR ARCHITECTURE MINOR

IA 151 Interior Architecture 3
IA 281-282 History of the Interior I-II 6
IA 368 Materials & Specifications 3
IA 478 Professional Practices for Interior Design 3
FCS 123 Textiles 3
Directed electives as approved by IA adviser 5

Dual Major

Students who fulfill the requirements for the B.F.A. in interior architecture may apply for matriculation in the Master of Architecture program. Several architecture course requirements may be waived in lieu of interior architecture course work. This degree track may be completed in six years. Details are available from the Department of Architecture.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Architecture.

Master of Architecture. Eighteen of the 30 credits required for the degree must be at the 500 level, including the following courses: Arch 510, Graduate Seminar (2 credits), Arch 555, Graduate Architectural Design, vertical studio (5 credits), and Arch 556, Graduate Project (5 credits).

The remaining courses required to complete 30 credits for the degree may be 400- or 500-level architecture courses or 300- or 400-level courses in supporting areas. The following courses or their approved equivalent must have been completed for the M.Arch. degree: Arch 463, 464, 465, 466, 468/568, 475, 476, 483. Equivalents must be approved by the chair of the Department of Architecture.

Transfer students are placed in the program according to their academic qualifications. Depending on the background of the transfer student, up to five years of study may be required to complete the degree requirements.

Master of Arts—Major in Architecture. The M.A. program offers a research degree open to candidates who hold a professional degree in architecture, B.S.Arch., M.Arch., or other degree holders who desire to embark on a career in architectural research and scholarship in an area of specialization represented by the expertise of participating graduate faculty. The program is designed for independent study under the guidance of an assigned major professor who will serve as both adviser and mentor. Graduate students work closely with their faculty mentors to develop a detailed program of study.

Acceptance into the program is contingent on the Research Program Committee's ability to pair the applicant's intended area of study with the interests and expertise of a participating faculty member willing to serve as mentor. Prospective students are encouraged to correspond with faculty members who could serve as mentor.

The M.A. degree requirements include: Arch 500 (Master's Research and Thesis, 10 credits), Arch 501/510 (Seminar, 4 credits), and 16 credits of approved electives.

The M.A. research degree is offered in the following areas of specialization for which faculty have expertise: history and theory (studies in Western architecture and urbanism; Ancient, Medieval, Renaissance-Baroque, 18th century, 19th century, Modern Movement to 1965; studies on traditional non-western and Native American architecture and settlements; studies of architecture and urbanism of Rome and Italy; studies in American architecture and urbanism; studies of architectural theory since 1965 in relationship to Postmodern thought); historic preservation (new design in historic settings, preservation of buildings, townscapes, and landscapes, conservation); virtual architecture; community design; rural issues; urban theory and issues (studies of urbanism); interior design issues; environmentally responsive design (daylighting; sustainable design strategies); environment, behavior, and aging; and implementation studies of architecture.

WOOD CONSTRUCTION AND DESIGN

For information on an undergraduate major in forest products with an option in wood construction and design, see the Department of Forest Resources section.

Department of Art

Jill Dacey, Dept. Chair (203 Art and Arch. South 83844-2471; phone 208/885-6851). ***Faculty:*** **Delphine Keim Campbell, Byron D. Clercx, Frank A. Cronk, Jill Dacey, David F. Giese, H. Lynne Haagensen, Richard L. Higgs, Sally G. Machlis, Kevin W. McManamy, Karen D. Watts, George T. Wray.** ***Adjunct Faculty:*** **Gail A. Siegel, H. Allen Wildey, William P. Woolston.** ***Affiliate Faculty:*** **John Larkin, Marilyn Lysohir, Jon Ochs, Melissa Rockwood.**

The art curriculum at UI leads to a B.A., B.S.Art Ed., or B.F.A. with a major in studio art degrees. This curriculum provides a broad base from which students may pursue a number of different career options. Students are required to complete a core of courses (the art core) designed to ensure an understanding of the historical and theoretical bases of art and design, while developing general competency in various media.

The B.F.A. degree is designed for those students who wish to develop professional careers in art. Requirements for the degree are stringent, and include intense involvement in studio work in the senior year, closely monitored by all faculty members, culminating in the development of a portfolio and written statement in support of a professional exhibition. Because the B.F.A. degree is a professional degree, often preparatory to pursuit of a Master of Fine Arts (M.F.A.) degree, students must maintain a minimum 2.5 GPA.

The B.S.Art Ed. degree is designed for those students intending to pursue a career of teaching in the public schools. In addition to the studio course requirements, students take a range of courses in the College of Education that lead to teacher certification. The B.S.Art Ed. is a rigorous degree specializing in studio art.

The B.A. degree with a major in art is designed to ensure a broad, liberal education with an emphasis in art. Students pursuing this degree must meet the B.A. degree requirements listed in the College of Letters and Science section of this catalog.

The Art Department offers two graduate degree programs: M.F.A. and M.A.T.

Graduate students are assigned studio space in the department's Graduate Art Studio (GAS House), as space and individual requirements permit. Priority is given to full-time graduate students.

Admission requirements for the M.F.A. include a minimum grade-point average of 2.80 and an undergraduate degree in a studio area, or its equivalent as determined by the Art Department graduate faculty. Fewer than 60 credits in studio courses, and 12 in art history (or criticism, theory, or history in a related field) at the undergraduate level is considered a deficiency. Applicants with these deficiencies who are admitted to the M.F.A. program may be required to include deficiency course work as part of their graduate program. Deficiency courses are required but do not count towards satisfying degree requirements.

Admission to the M.A.T. degree requires an approved undergraduate degree, or its equivalent as determined by the Art Department graduate faculty, at least 20 credits of undergraduate art course work, and a minimum grade-point average of 2.80. Fewer than 20 credits in art courses at the undergraduate level is considered a deficiency. Applicants with these

deficiencies who are admitted to the M.A.T. program may be required to include deficiency course work as part of their graduate program. Deficiency courses are required but do not count towards satisfying degree requirements.

All applicants for the graduate programs are required to present a comprehensive portfolio of work, a written statement of goals or intent, and three letters of recommendation. Portfolios are normally in slide form, 20-40 clearly labeled slides, and must include a postage-paid return envelope. Original work may be submitted at the discretion of the graduate coordinator.

Graduate applicants should direct all correspondence to the UI Art Department graduate coordinator.

The Department of Art is accredited by the National Association of Schools of Art and Design (NASAD).

Courses

See part 6 for courses in Art (Art).

Undergraduate Curricular Requirements

ART CORE

Art 100 Visual Art 3
Art 111-112 Drawing I-II 6
Art 121-122 Visual Communication & the Design Process 6

STUDIO ART (B.F.A.)

The B.F.A. is a four-year degree divided into two parts: the preprofessional program (freshman and sophomore years) and the professional program (junior and senior years). Majors are eligible to apply for the professional program when they have completed the art core and the 200-level art course requirements (31 credits), and earned a minimum 2.5 GPA. Application for the professional program may be made during the semester the student is completing these requirements. Applications for the professional B.F.A. program will be requested each semester. Transcripts and a portfolio of the student's art work must accompany the application. Students accepted into the professional program must complete 15 credits of 300-level studio courses with at least 6 of the 15 credits in one sequential studio area and 6 credits of art history before enrolling in Art 490 and Art 495. Students must maintain a minimum GPA of 2.5 and receive a grade of C or better in the 300- and 400-level art courses. Students may reapply for entry into the professional program any semester after their sophomore year.

Required course work includes the university requirements (see regulation J-3), the art core, and a studio emphasis (all the 200-level and 300-level courses in a specific studio area) in one of the following areas: drawing, graphic design, interface design, painting, textile design, sculpture, photography, printmaking, or ceramics, and:

Art 301 History of Art: 19th Century 3
Art 302 History of Art: 20th Century 3
Art 408 Readings in Art 3
Art 410 Gallery 2
Art 490 Art Studio 16
Art 495 BFA Senior Thesis 4
History elective selected from Arch 385 or 386, Comm 382 or 384, Comm 445, FCS 329, IA 281 or 282, LArc 389, Phil 421 3
200-level studio courses selected from the following (students pursuing a studio emphasis in drawing must include Art 212; students pursuing a studio emphasis in graphic design must include Art 222; textile design majors must include Art 215; and interface design majors must include Art 272) 15-18
- Art 211-212 Drawing III-IV
- Art 214-215 Textile Design I-II
- Art 221 Graphic Design I
- Art 231 Painting I
- Art 241 Sculpture I
- Art 251 Printmaking I
- Art 261 Ceramics I
- Art 271-272 Interface Design I-II
- Art 281 Watercolor I
- Comm 281 Understanding Photography

300-level studio courses selected from the following (at least 6 cr must be taken in one sequential studio area, e.g., Art 391-392, Comm 381-385) 15
- Art 311-312 Drawing V-VI
- Art 314-315 Textile Design III-IV
- Art 321-322 Graphic Design III-IV
- Art 331-332 Painting II-III
- Art 341-342 Sculpture II-III
- Art 351-352 Printmaking II-III
- Art 361-362 Ceramics II-III
- Art 371-372 Interface Design III-IV
- Art 391 Collage
- Art 392 Mixed Media
- Comm 381 Photographic Materials & Techniques
- Comm 385 Color Photography
- Comm 387 Digital Imaging

Electives to total 128 cr for the degree ..... —

No more than a combined total of 9 credits of the following courses may be applied toward a B.F.A. degree: Art 404, 488, 497, 498, and 499.

ART (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, the art core, and a studio emphasis (all the 200-level and 300-level courses in a specific studio area) in one of the following areas: drawing, graphic design, interface design, painting, textile design, sculpture, photography, printmaking, or ceramics, and:

Art 301 History of Art: 19th Century 3
Art 302 History of Art: 20th Century 3
Art 408 Readings in Art 3
Art 410 Gallery 2
History elective selected from Arch 385 or 386, Comm 382 or 384, Comm 445, FCS 329, IA 281 or 282, LArc 389, Phil 421 3
200-level studio courses selected from the following (students pursuing a studio emphasis in drawing must include Art 212; students pursuing a studio emphasis in graphic design must include Art 222; textile design majors must include Art 215; and interface design majors must include Art 272) 15-18
- Art 211-212 Drawing III-IV
- Art 214-215 Textile Design I-II
- Art 221 Graphic Design I
- Art 231 Painting I
- Art 241 Sculpture I
- Art 251 Printmaking I
- Art 261 Ceramics I
- Art 271-272 Interface Design I-II
- Art 281 Watercolor I
- Comm 281 Understanding Photography

300-level studio courses selected from the following (at least 6 cr must be taken in one sequential studio area, e.g., Art 391-392, Comm 381-385) 12
- Art 311-312 Drawing V-VI
- Art 314-315 Textile Design III-IV
- Art 321-322 Graphic Design III-IV
- Art 331-332 Painting II-III
- Art 341-342 Sculpture II-III
- Art 351-352 Printmaking II-III
- Art 361-362 Ceramics II-III
- Art 371-372 Interface Design III-IV
- Art 391 Collage
- Art 392 Mixed Media
- Comm 381 Photographic Materials & Techniques
- Comm 385 Color Photography
- Comm 387 Digital Imaging

Electives to total 128 cr for the degree ..... —

ART EDUCATION (B.S.Art Ed.)

Required course work includes the university requirements (see regulation J-3), the art core, a studio emphasis (all the 200-level and 300-level courses in a specific studio area) in one of the following areas: drawing, graphic design, interface design, painting, textile design, sculpture, photography, printmaking, or ceramics, and the courses listed below.

Note: For registration in upper-division courses in the field of education, students must have been admitted to the teacher education program and have a GPA of 2.5, unless a higher average is stated as a prerequisite in the course description. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of part four of this catalog.

Art 301 History of Art: 19th Century 3
Art 302 History of Art: 20th Century 3
Art 408 Readings in Art 3
Art 410 Gallery 2
History elective selected from Arch 385 or 386, Comm 382 or 384, Comm 445, FCS 329, IA 281 or 282, LArc 389, Phil 421 3
200-level studio courses selected from the following (students pursuing a studio emphasis in drawing must include Art 212; students pursuing a studio emphasis in graphic design must include Art 222; textile design majors must include Art 215; and interface design majors must include Art 272) 15-18
- Art 211-212 Drawing III-IV
- Art 214-215 Textile Design I-II
- Art 221 Graphic Design I
- Art 231 Painting I
- Art 241 Sculpture I
- Art 251 Printmaking I
- Art 261 Ceramics I
- Art 271-272 Interface Design I-II
- Art 281 Watercolor I
- Comm 281 Understanding Photography

300-level studio courses selected from the following (at least 6 cr must be taken in one sequential studio area, e.g., Art 391-392, Comm 381-385) 12
- Art 311-312 Drawing V-VI
- Art 314-315 Textile Design III-IV
- Art 321-322 Graphic Design III-IV
- Art 331-332 Painting II-III
- Art 341-342 Sculpture II-III
- Art 351-352 Printmaking II-III
- Art 361-362 Ceramics II-III
- Art 371-372 Interface Design III-IV
- Art 391 Collage
- Art 392 Mixed Media
- Comm 381 Photographic Materials & Techniques
- Comm 385 Color Photography
- Comm 387 Digital Imaging

ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
ED 314 Strategies for Teaching 3
ED 328 Introduction to Educational Technology 2
ED 431 or ED 431 and EDTE 435 Practicum 14
ED 445 Proseminar in Teaching 3
ED 468 Historical & Philosophical Foundations of Education 3
EDTE 463 Literacy Methods for Content Learning 3
EDTE 479 Secondary School Art Methods 3
Psyc 305 or ED 312 Developmental or Educational Psychology 2-3
Electives to total 128 cr for the degree ..... —

Academic Minor Requirements

ART MINOR

Art 100 Visual Art 3
Art 111-112 Drawing I-II 6
Art 121-122 Visual Communication & the Design Process 6
200- and 300-level art studio classes 9

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Art. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Fine Arts. The Master of Fine Arts degree is a 60-credit degree designed for students wishing to prepare themselves for a career as a professional artist or art teacher at the college or university level.

The M.F.A. is the terminal degree in studio art and requires a thesis. The major portion of the student's thesis consists of a one-person exhibition of professional quality work supported by a written statement on the nature of the work. The statement includes an explanation of the evolution of the conceptual or theoretical basis for the work (including historical and contemporary examples and influences), and a discussion of the experiments, processes, and technical experiments that were used in the evolution of the work.

Areas of concentration are: painting, drawing, sculpture, ceramics, graphic design, textile design, printmaking, and interface design, or a direction may be developed that combines two or more of these areas. Students wishing to work in an area other than those listed above must clearly state their intention in their statement of goals or intent upon application for admission to the M.F.A. program.

A final oral examination is required (and may be supplemented with a written examination at the discretion of the graduate committee).

Master of Arts in Teaching—Major in Art. The Master of Arts in Teaching degree is a 30-credit degree designed for those students who are certified teachers wishing to strengthen their experience in studio art.

Of the 30-credit total, 20 credits must be in art courses and 6 in professional courses in education. At least 6 credits must be at the 500 level.

300- and 400-level courses in art may be counted towards the degree. M.A.T. students are encouraged to prepare themselves to take at least 6 credits, in 500-level art studio (Art 525, Art Faculty Studio), and to participate fully in graduate activities.

Areas of concentration are: painting, drawing, sculpture, ceramics, graphic design, textile design, printmaking, and interface design, or a direction may be developed that combines two or more of these areas. Students wishing to work in an area other than those listed above must clearly state their intention in their statement of goals or intent upon application for admission to the M.A.T. program. Students wishing to work in a studio in which they lack adequate preparation may be required to take deficiency courses as prerequisites.

A final oral examination is required (and may be supplemented with a written examination at the discretion of the graduate committee). The M.A.T. final examination may require a written statement as a basis for the oral examination. Such determination is at the discretion of the graduate committee.

Department of Biological and Agricultural Engineering

James A. DeShazer, Dept. Head (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu; http://www.uidaho.edu/bae). *Faculty:* Richard G. Allen, Jan Boll, Erik S. Drews, James A. DeShazer, Thomas F. Hess, Thomas J. Karsky, Bradley A. King, Jack M. McHargue, W. Howard Neibling, Charles L. Peterson, Russell J. Qualls.

The **departmental mission** is to conduct research, extension, and teaching programs to solve engineering and technological management problems in agricultural, environmental and natural resources areas. This is accomplished through an understanding of the complex interplay between the biological and physical sciences. The department's teaching program includes degree programs in agricultural engineering and biological systems engineering, which are offered through the College of Engineering, and in agricultural systems management, offered through the College of Agriculture. Graduate programs in biological and agricultural engineering are offered through the College of Graduate Studies.

Agricultural Engineering is the profession that bridges the area between two fields of applied science—engineering and agriculture. It is oriented to the design of equipment and systems for production, processing, and transportation of food, feed, natural raw fiber, and forest products and for the effective use of natural resources. Agricultural engineers have the education and interests that make them uniquely capable of developing engineering solutions from agricultural and biological systems.

The agricultural engineering program at UI is designed to prepare students for a variety of interesting and rewarding careers. Many graduates are employed as design or development engineers by equipment manufacturers, irrigation companies, trade associations, engineering consulting firms, and governmental agencies. Others are self-employed in farm equipment manufacturing, consulting firms, and other engineering-related enterprises.

The graduate of this program can communicate engineering design concepts through oral and written communications and engineering graphics. The graduate has basic computer and mathematical skills, as well as knowledge of the physical and biological sciences for analysis of agricultural and natural resource problems, and can apply these skills and knowledge to the designing of equipment and systems. The graduate also has a social science and humanities background to aid in the understanding and appreciation of the impact engineering design has on society.

The curriculum leading to the B.S.Ag.E. is accredited by the Engineering Accreditation Commission of the Accrediting Board of Engineering and Technology (EAC/ABET). Students in this program are eligible to take the Fundamentals of Engineering (FE) Examination prior to graduation and to become registered professional engineers after graduating and completing an experience requirement.

Biological Systems Engineering is an undergraduate curriculum designed to prepare engineers to solve technological problems in systems that involve plants, animals, microorganisms, and biological materials. They produce creative and effective solutions to problems facing the environment, our food supply, and all types of living organisms in a biologically complex, interconnected and changing world.

The graduate of this program can communicate engineering design concepts through oral and written communication and engineering graphics. The graduate has basic computer and mathematical skills, as well as knowledge of the physical and biological sciences for analysis of biological systems engineering problems, and can apply these skills and knowledge to the design of processes and systems. The graduate also has a social science and humanities background to aid in the understanding and appreciation of the impact engineering design has on society.

A broader emphasis in biology and chemistry is made within this curriculum compared to other engineering disciplines. Depending on their electives, graduates in biological systems engineering have opportunities to work with consulting and industrial firms in environmental engineering design, environmental control and monitoring, non-point source pollution abatement, bioremediation, hydrology, and water quality control. They may also work with food processing industries in storage, product development, and quality control. Other options include governmental agencies in water resources, environmental quality, and environmental protection. The program can be designed to prepare the student for advanced biomedical studies.

The curriculum leading to the B.S.B.Sy.E. is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). Students in this program are eligible to take the Fundamentals of Engineering (FE) Examination prior to graduation.

Agricultural Systems Management emphasizes the use and management of equipment and systems based on an understanding of their design and operation. Agricultural systems management courses are designed to provide students with experience in systems technology and analysis of agricultural equipment and machinery applications, feed and food processing, agricultural electrification, soil and water management, and fabrication practices for agricultural and natural resource-based enterprises.

The undergraduate degree program in agricultural systems management (B.S.A.S.M.) is designed to prepare students to apply biological, physical, mechanical, and business knowledge to the production, service, sales, application, and management of the equipment and processes used in agriculture. The curriculum stresses courses in agriculture, agricultural systems management, and basic and applied sciences. It also includes a strong background in agricultural economics, accounting, and business. It prepares students for a variety of important and rewarding career opportunities. Many graduates return to farming, while others pursue careers as farm managers or are employed in agricultural and natural resource-oriented businesses, banking firms, educational institutions, or governmental agencies. This curriculum is recognized by the American Society of Agricultural Engineers.

The agricultural systems management courses are also available to nonmajors interested in obtaining an understanding of the technology used in modern agricultural production systems. A minor in agricultural systems management can be used to support degree programs in other departments.

Graduate study is offered in biological and agricultural engineering with specialization in irrigation, water and chemical management, hydrology, soil and water conservation, subsurface water and chemical transport modeling, and climate modeling; alternative fuels and lubricants; harvesting, handling, processing, storing and transporting of agricultural crops; instrumentation and control; equipment design and development; environmental systems for plants and animals and bioremediation and organic waste management and treatment. The M.S. and Ph.D. degrees are primarily research degrees. Prospective students should have the equivalent of a B.S. degree in engineering and must have a working knowledge of computers including mainframe and microcomputers, structured programming, and electronic spreadsheets.

Assessment of departmental objectives is accomplished by monitoring performance of students on the Fundamentals of Engineering examination and by student interviews. All graduates are interviewed at the time of graduation by the department to evaluate concerns, opportunities, and effectiveness of its educational programs. The assessment statistics can be obtained from the departmental office.

Courses

See part 6 for courses in Agricultural Engineering (AgE), Agricultural Systems Management (ASM), and Biological Systems Engineering (BSyE).

Undergraduate Curricular Requirements

AGRICULTURAL ENGINEERING (B.S.Ag.E.)

Designed to prepare students for professional careers in agricultural engineering. The curriculum is administered under the College of Engineering and is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

Required course work includes the university requirements (see regulation J-3) and:

AgE 142 Engineering for Living Systems 2
AgE 143 Engineering Problem Solving or computer science elective in a programming language 2
AgE 242 Agricultural Engineering Analysis & Design 2
AgE 351 Hydrology 3
AgE 352 Soil & Water Engineering 3
AgE 372 Agricultural Power & Machines 3

AgE 441 Instrumentation & Measurements for Biological Systems 3
AgE 449 Design of Agricultural Structures 3
AgE 456 Irrigation System Design 3
AgE 461 Agricultural Processing & Environment 3
AgE 462 Electric Power & Controls for Biological Systems 3
AgE 478, 479 Agricultural Engineering Design I, II 3
AgE 491 Seminar 1
Chem 111-112 Principles of Chemistry I-II 8
CE 211 Engineering Measurements 3
Engr 105 Engineering Graphics 2
Engr 210 Engineering Statics 3
Engr 220 Engineering Dynamics 3
Engr 240 Introduction to Electrical Circuits 3
Engr 320 Engineering Thermodynamics & Heat Transfer 3
Engr 335 Engineering Fluid Mechanics 3
Engr 350 Engineering Mechanics of Materials 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
Phys 211-212 Engineering Physics I, II 6
Soil 205 General Soils 3
Stat 301 Probability & Statistics 3
Biological science electives 3
Communications electives 2
Humanities and social sciences electives 14
Technical electives—may incl upper-division biological science and must incl at least two formal 400-level agricultural engineering or biological systems engineering courses 11
Undesignated electives 4

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: AgE 143 and 242, Chem 111, Engr 210 and 220, Math 275, and Phys 211.

AGRICULTURAL SYSTEMS MANAGEMENT (B.S.A.S.M.)

Designed to prepare students for careers in agriculture and agriculturally related businesses that require a knowledge of engineering methods. Emphasis is placed on the practical application of technology to agriculture. This curriculum is administered by the Department of Biological and Agricultural Engineering.

Required course work includes the university requirements (see regulation J-3) and:

ASM 112 Introduction to Agricultural Systems Management 3
ASM 115 Graphical Representation 2
ASM 200 Seminar 1
ASM 202 Agricultural Shop Practices 2
ASM 240 Computer Applications in Biological Systems 3
ASM 304 Agricultural Fluid Power Systems 1
ASM 305 Agricultural Machinery Systems 3
ASM 306 Agricultural Structures & Environmental Systems 3
ASM 315 Irrigation Systems & Water Management 3
ASM 331 Electric Power Systems for Agriculture 3
ASM 409 Agricultural Tractors & Power Units 4
ASM 414 Analysis of Agricultural Systems I 2
ASM 424 Analysis of Agricultural Systems II 2
ASM 433 Agricultural Processing Systems 3
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
AgEc 278 Principles of Farm & Ranch Management 4
AgEc 391 Agribusiness Management 3
Biol 100 Introduction to Biology 4
BLaw 265 Legal Environment of Business 3
CE 218 Elementary Surveying or ForP 230-231 Forest Land Measurements I-II 2
Chem 101 Introduction to Chem I or 111 Principles of Chem I 4
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Math 160 Survey of Calculus or Math 170 Analytic Geom & Calculus 4
Phys 100 Fundamentals of Physics 4
PlSc 102 The Science of Plants in Agriculture 3
Soil 205, 206 General Soils & Lab 4
Stat 251 Principles of Statistics 3
Advanced writing electives 3
Agricultural electives 3
Business electives 3
Humanities and social sciences electives 8
Life sciences electives 3
Technical electives 11
Electives to total 132 cr for the degree ..... —

BIOLOGICAL SYSTEMS ENGINEERING (B.S.B.Sy.E.)

Designed to prepare students for professional careers in biological systems engineering. The curriculum is administered under the College of Engineering and is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

Required course work includes the university requirements (see regulation J-3) and:

AgE 351 Hydrology 3
BSyE 142 Engineering for Living Systems 2
BSyE 143 Engineering Problem Solving or computer science elective in a programming language 2
BSyE 242 Biological Systems Engineering Analysis & Design 2
BSyE 361 Transport Processes in Biological Systems 3
BSyE 386 Mechanics of Biomaterials or Engr 350 Engineering Mechanics of Materials 3
BSyE 441 Instrumentation & Measurements for Biological Systems 3
BSyE 462 Electric Power & Controls for Biological Systems 3
BSyE 478, 479 Biological Systems Engineering Design I, II 3
BSyE 491 Seminar 1
Biol 201 Introduction to the Life Sciences 4
Chem 111-112 Principles of Chemistry I-II 8
Chem 277, 278 Organic Chemistry I & Lab 4
Engr 105 Engineering Graphics 2
Engr 210 Engineering Statics 3
Engr 240 Introduction to Electrical Circuits 3
Engr 320 Engineering Thermodynamics & Heat Transfer 3
Engr 335 Engineering Fluid Mechanics 3
Engr 360 Engineering Economy 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
MMBB 250 General Microbiology 5
MMBB 380, 382 Introductory Biochemistry & Laboratory 5
Phys 211-212 Engineering Physics I, II 6
Soil 205 General Soils 3
Stat 301 Probability & Statistics 3
Biological science electives 3
Communications elective 2
Technical electives—may include upper-division biological sciences and must include at least two formal 400-level courses in Biological Systems Engineering or Agricultural Engineering 12
Humanities and social sciences electives 14
Undesignated electives 3

The minimum number of credits for the degree is 130, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: BSyE 143 and 242, Chem 111, Engr 210, Math 275, and Phys 211.

Academic Minor Requirements

AGRICULTURAL SYSTEMS MANAGEMENT MINOR

ASM 202 Agricultural Shop Practices 2
At least four credits from the following skill courses:
- ASM 107 Beginning Welding (2 cr)
- ASM 115 Graphical Representation (2 cr)
- ASM 210 Small Engines (2 cr)

At least ten credits from the following application courses:
- ASM 304 Agricultural Fluid Power Systems (1 cr)
- ASM 305 Agricultural Machinery Systems (3 cr)
- ASM 306 Agricultural Structures & Environmental Systems (3 cr)
- ASM 315 Irrigation Systems & Water Management (3 cr)
- ASM 409 Agricultural Tractors & Power Units (4 cr)

The minimum number of credits in agricultural systems management courses for the minor is 19.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Biological and Agricultural Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. General M.S. requirements apply. Study and research programs are available in all of the areas listed above.

Master of Engineering. General M.Engr. requirements apply.

Doctor of Philosophy. Admission to this program is based on the student's interest being compatible with faculty interest, funds, and facilities. Admission is given only after a thorough review of the student's academic background, research interests, and potential. Individual programs normally consist of three years' work beyond the bachelor's degree. The department does not have a mandatory foreign language requirement. Students are required, however, to broaden their education in an area outside the normal engineering and science curricula. This can be done by taking courses in the humanities and social sciences, demonstrating an in-depth proficiency in a foreign language, or participating in an equivalent broadening educational experience.

Department of Biological Sciences

R. Francis Rosenzweig, Interim Dept. Chair (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280; http://www.uidaho.edu/LS/BioSc). *Faculty:* Steven N. Austad, John A. Byers, Joseph G. Cloud, Mark E. DeSantis, Victor P. Eroschenko, Rolf L. Ingermann, Michael B. Laskowski, Roberta J. Mason-Gamer, Thomas A. McKean, James J. Nagler, R. Francis Rosenzweig, Deborah L. Stenkamp, John M. Sullivan, Clifford F. Weil, Holly A. Wichman.

The biological sciences deal with the basic biological principles of all living things with major emphasis on both plant and animal forms.

The Department of Biological Sciences offers several undergraduate curricular options in botany, zoology, and biology. Though all curricula involve exposure to concepts fundamental to plants and animals, degrees in zoology and botany allow students to emphasize course work dealing with animals and plants, respectively. All curricula are designed to introduce the undergraduate to modern molecular approaches to the life sciences as well as more classical approaches.

The department offers both B.A. and B.S. degrees in biology, botany, and zoology. Graduates from the department traditionally enter a variety of fields and many continue their education. Recent graduates have entered allied health professions, agribusiness, medical school, veterinary school, graduate school, state and national agencies that deal with biology (e.g.,

fish and game departments, EPA), as well as a variety of consulting agencies and biotechnology companies.

Faculty and facilities are available to teach and conduct research in animal and plant ecology, reproductive biology, comparative, cellular, and organ physiology, plant physiology, aquatic biology, evolutionary biology of fishes, birds, mammals, and bacteria, systematic biology, developmental plant anatomy, vertebrate aging, vertebrate behavior, and genetics.

The department offers a nonthesis graduate degree, the M.Nat.Sc., which is designed to increase the breadth and depth of understanding of biology and is designed primarily for secondary teachers. The M.S. and Ph.D. degrees in botany and zoology are also offered.

Graduate concentrations are offered in animal behavior, animal anatomy, animal ecology, aquatic biology, comparative physiology, developmental plant anatomy, genetics, plant ecology, plant physiology, plant and mammalian systematics, reproductive physiology, cell physiology, neurobiology, pesticide biology, microbial evolution, aging, and vertebrate sexual plasticity.

Admission to graduate programs in the department is based upon an estimate of probable success in work leading to a specific degree program. The Graduate Record Examination (aptitude only) is required of all applicants.

Students with any questions should call the department chair at (208) 885-6280.

Courses

See part 6 for courses in Biology (Biol), Botany (Bot), and Zoology (Zool).

Undergraduate Curricular Requirements

BIOLOGY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and the following (electives to be chosen in consultation with the departmental adviser):

Biol 101 Perspectives in Biology 1
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
Biol 442 Biological Evolution 3
Chem 111 Principles of Chemistry I 4
Chem 112 Principles of Chemistry II or Chem 113 Inorganic Chemistry & Qualitative Analysis 4-5
Chem 275, 276 Carbon Compounds & Lab or 277, 278 Organic Chem & Lab 4
Math 143 Pre-calculus Algebra & Analytic Geometry 3
MMBB 250 General Microbiology 5
MMBB 380 Introductory Biochemistry 4
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
Plus 18 credits in the following two sets of courses, including at least 8 credits from Set A 18

Set A:
Biol 352 Experimental Genetics (2 cr)
Biol 445 Principles of Systematic Biology (3 cr)
Bot 311 Plant Physiology (4 cr)
Bot 425 Developmental Plant Anatomy (3 cr)
Bot 432 Plant Ecology (3 cr)
Chem 374 Organic Chem Lab for Engrs or 376 Organic Chem II: Lab (1-2 cr)
MMBB 382 Introductory Biochemistry Lab (1 cr)
PISc 405 Plant Pathology (4 cr)
PISc 433 Experimental Approaches to Plant Regeneration (3 cr)
WLF 305 Field Research in Wilderness Ecology (3 cr)
WLF 448 Fish & Wildlife Population Ecology (4 cr)
Zool 324 Comparative Vertebrate Anatomy (4 cr)
Zool 423 Comparative Vertebrate Physiology (4 cr)
Zool 427 Vertebrate Histology & Organology (4 cr)
Zool 481 Ichthyology (4 cr)
Zool 482 Natural History of Birds (3 cr)
Zool 483 Natural History of Mammals (3 cr)
Zool 484 Invertebrate Zoology (4 cr)

Set B:
Biol 353 Introduction to Molecular Biology (3 cr)
Bot 452 Principles of Plant Molecular Biology (3 cr)
Chem 372 Organic Chemistry II (3 cr)
MMBB 409 Immunology (3 cr)
MMBB 488 Genetic Engineering (3 cr)
Zool 411 Comparative Vertebrate Reproduction (3 cr)
Zool 414 Cell Physiology (3 cr)
Zool 417 Endocrine Physiology (3 cr)
Zool 435/Fish 415 Limnology (4 cr)
Zool 461 Neurobiology (3 cr)
Zool 472 Developmental Biology (3 cr)
Zool 478 Animal Behavior (3 cr)

BOTANY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and the following (electives to be chosen in consultation with the departmental adviser):

Bot 241 Systematic Botany 3
Bot 311 Plant Physiology 4
Bot 425 Developmental Plant Anatomy 3
Bot 432 Plant Ecology 3
Bot 452 Principles of Plant Molecular Biology 3
Biol 101 Perspectives in Biology 1
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
Biol 352 Experimental Genetics 2
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 275, 276 Carbon Compounds & Lab or 277, 278, 372, 376 Organic Chemistry I-II & Lab ..... 4 or 9
Math 160 Survey of Calculus or Math 170 Analytic Geometry & Calculus I 4
MMBB 380 Introductory Biochemistry 4
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
One of the following 3
Chem 302 Principles of Physical Chemistry
Chem J318/J418 Environmental Chemistry
MMBB 480 Biochemistry & Molecular Biology
MMBB 486 Plant Biochemistry
One of the following 3
Engl 207 Persuasive Writing
Engl 208 Personal & Exploratory Writing
Engl 209 Inquiry-Based Writing
Engl 309 Advanced Prose Writing
Engl 313 Business Writing
Engl 317 Technical & Engineering Report Writing

ZOOLOGY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and the following (electives to be chosen in consultation with the departmental adviser):

Zool 324 Comparative Vertebrate Anatomy 4
Zool 414 Cell Physiology or 423 Comparative Vertebrate Physiology 3-4
Zool 481 Ichthyology or 482 Natural History of Birds or 483 Natural History of Mammals 3-4
Zool 484 Invertebrate Zoology or Ent 211 General Entomology 4
Biol 101 Perspectives in Biology 1
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
Biol 352 Experimental Genetics 2
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 277, 278 Organic Chemistry I & Lab or 275, 276 Carbon Compounds & Lab 4
Chem 372 Organic Chem II or MMBB 380 Introductory Biochem 3-4
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
Approved upper-division biology or zoology electives 3-4

PRE-MEDICAL AND PRE-DENTAL STUDIES

Admission to schools of medicine or dentistry involves satisfactorily fulfilling prerequisite course work, obtaining a sufficiently high score on the Medical College Admission Test (MCAT) or Dental Admission Test (DAT), submitting completed applications, and having a successful interview. The allied health adviser in the Department of Biological Sciences advises students in all areas of the application process and maintains MCAT and DAT study materials through the Reserve Desk in the University Library. A committee of three faculty members interviews pre-medical students (and pre-dental students on request), writes a letter of evaluation, and provides guidance to students in the interview process. A video recording of the interview is reviewed by the student with the allied health adviser to better prepare the student for formal interviews elsewhere.

Students with interests in either the M.D. or D.D.S. degree are urged to contact Rolf Ingermann, Gibb 237, during their first semester at the university.

PRE-NURSING STUDIES

Admission to a school of nursing involves meeting satisfactorily its entrance requirements, acceptable scholastic records or a satisfactory score on the nursing admission test, and possession of personal qualifications essential for effective nursing. Requirements of the institution to which the student will transfer should be investigated by the student to ensure inclusion of courses that meet those requirements.

The following two-year program is suggested for students who plan to transfer to a school of nursing.

Chem 101 Introduction to Chem I or 111 Principles of Chem I 4
Chem 275, 276 Carbon Compounds & Lab 4
FCS 205 Concepts in Human Nutrition 3
MMBB 250 General Microbiology or 154 Introductory Biology of Bacteria & Viruses 3-5
Psyc 101 Introduction to Psychology 3
Soc 101 Introduction to Sociology 3
Stat 251 Principles of Statistics 3
Zool 120 Human Anatomy 4
Zool 121 Human Physiology 4
Humanities and social sciences electives (at least 6 cr in each field) 21
Communications electives (3 cr must be in written communication) 6
Electives 2

Strongly recommended elective:

Math 143 Pre-calculus Algebra & Analytic Geometry 3

PRE-PHYSICAL THERAPY STUDIES

UI does not have a professional program in physical therapy and does not offer a degree program in pre-physical therapy. Students can, however, take courses that are prerequisites for admission into bachelor's, certificate, or master's degree programs in physical therapy at other institutions. Completion of these prerequisites does not guarantee acceptance into a physical therapy program and these classes are not necessarily a part of a degree program at UI. Consequently, we strongly urge students to pursue a B.S. or B.A. degree in an allied area (such as biology, psychology, sport science, and the like) while completing the prerequisites for admission to a physical therapy degree program. Students applying as pre-physical therapy majors will be temporarily placed in the biology major. The pre-physical therapy adviser in the Department of Biological Sciences advises students interested in preparing to enter into a professional program at another institution. Three basic plans of study at UI can lead to qualification for admission to a professional program in physical therapy: (1) graduation from UI with a bachelor's degree in some allied area and application to a master's degree program at some other institution, (2) graduation with a bachelor's degree in some allied area and application to a certificate program at some other institution, or (3) completion of the physical therapy prerequisites after two to three years of study at UI and subsequent application and transfer to a bachelor's degree program in physical therapy at some other institution. However, competition for all degree programs in physical therapy is very keen and most successful applicants, even to bachelor programs in physical therapy, already have a bachelor's degree in an allied area. Consequently, although we recommend the following classes for completion of the physical therapy prerequisites for most master, certificate, or bachelor programs, students must enroll at UI in a traditional bachelor's degree program in some allied area.

Recommended Preparation

The courses listed below include most of the essential courses for transfer into a typical program.

Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Chem 111-112 Principles of Chemistry I-II 8
Engl 101 Introduction to College Writing 3
Engl 102 College Writing & Rhetoric 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
Phys 111-112 General Physics I-II 8
Psyc 101 Introduction to Psychology 3
Psyc 305 Developmental Psychology 3
Psyc 311 Abnormal Psychology 3
Soc 101 Introduction to Sociology 3
Zool 120 Human Anatomy 4
Zool 121 Human Physiology 4
Humanities electives 3
Electives 14

Academic Minor Requirements

BIOLOGY MINOR

Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
One of the following 3-4
- Bot 311 Plant Physiology
- Zool 120 Human Anatomy
- Zool 414 Cell Physiology
- Zool 423 Comparative Vertebrate Physiology

BOTANY MINOR

Bot 241 Systematic Botany 3
Bot 311 Plant Physiology 4
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3

ZOOLOGY MINOR

Zool 324 Comparative Vertebrate Anatomy 4
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Course in animal physiology 3-4
One of the following 3-4
- Biol 331 General Ecology
- Zool 481 Ichthyology
- Zool 482 Natural History of Birds
- Zool 483 Natural History of Mammals
- Zool 484 Invertebrate Zoology

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Biological Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. Major in botany or zoology. The M.S. program emphasizes research. In addition to the requirements listed above, admission is based upon the compatibility of the student's research interests with the areas of concentration available in the department.

Master of Natural Science. Major in biological sciences. This program is intended primarily for students who are currently engaged in, or planning to enter, secondary-school or junior-college teaching. The major part of the course work will be in biological sciences. A program will be planned by the adviser and the candidate for coherency and will include coverage of the following areas (prior undergraduate preparation included): physiology or biochemistry, evolution, systematics, ecology, morphology, genetics, and microbiology. The terminal project consists of a major paper and a comprehensive examination.

Doctor of Philosophy. Major in botany or zoology. In addition to the general requirements, the department has a requirement for a foreign language or a specified level of skill in computer science. The decision as to which requirement is most appropriate is left to the student's committee.

Department of Business

C. Randall Byers, Dept. Head (338D Admin. Bldg. 83844-3178; phone 208/885-6295; e-mail rbyers@uidaho.edu). ***Faculty:*** **Jeffrey J. Bailey, C. Randall Byers, Sue Clark, Raymond Dacey, Byron J. Dangerfield, Daniel M. Eveleth, Joseph J. Geiger, Dwayne D. Gremler, Terrance Grieb, John J. Lawrence, Michael A. McCollough, Lawrence H. Merk, John S. Morris, Linda J. Morris, C. R. Narayanaswamy, Philip D. Olson, Kathy L. O'Malley, Norman Pendegraft, Steven W. Pharr, Mario G. Reyes, Robert W. Stone, Dana L. Stover, Chong Leng Tan, Michael Tracey, Jerry L. Wegman.**

The five major fields (finance, information systems, management and human resources, marketing, and production/operations management) within the department lead to the B.S.Bus. degree. These programs provide a solid foundation in the liberal arts, a broad professional preparation in business, and in-depth course work in a major field. They are designed to prepare the student to excel in a competitive market environment. The department offers minors in business and in international business.

The finance major prepares students for careers in commercial lending, estate planning, security analysis, portfolio management, and corporate finance.

The information systems major prepares students in the areas of systems analysis and development, data base management, networking, and data communications.

The management and human resources major prepares students for opportunities in the areas of management and personnel administration.

The marketing major prepares students for opportunities in a broad range of areas including management of retail and wholesale distribution, advertising, market research, and customer service operations.

The production/operations management major prepares students for management positions in operations planning and control, quality management and purchasing.

The business minor is designed for students outside of the CBE who desire an exposure to the field of business. The minor covers the primary fields in business, provides a background in business as a basis for further graduate work, and complements the student's academic major and future professional career.

The international business minor, open only to students with a major in the College of Business and Economics, complements each of the majors in the college, and prepares students to extend their disciplinary mastery to the global economy.

Courses

See part 6 for courses in Business (Bus) and Business Law (BLaw).

Undergraduate Curricular Requirements

FINANCE (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 300 Accounting Concepts & Systems 3
Acct 301 Corporate Accounting & Reporting 3
Bus 302 Intermediate Financial Management 3
Bus 401 Investments 3
Bus 407 Financial Institutions 3
Bus 409 Problems in Financial Management 3
Econ 343 Money & Banking (may be used to fulfill college core economics requirements) 3
One course selected from the following 3
- Bus 405 Portfolio Management
- Bus 408 Security Analysis
- Bus 481 International Finance

Two courses selected from the following 6
- Acct 385 Cost & Management Accounting
- Acct 430 Accounting for Public Sector Entities
- Acct 490 Advanced Corporate Accounting & Reporting
- Bus 362 Real Property Appraisal OR Bus 364 Insurance
- Bus 405, 408, or 481 (if not chosen above)
- Bus 421 Marketing Research & Analysis
- Bus 427 Services Marketing
- Econ 352 Intermediate Microeconomic Analysis
- Econ 353 Quantitative Economics & Forecasting
- Econ 407 Public Finance OR Econ 408 State & Local Govt Finance
- Econ 453 Econometrics
- Stat 401 Statistical Analysis

In addition to all other requirements, students must take at least 12 credits from outside the CBE in addition to those specifically required.

INFORMATION SYSTEMS (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Bus 250 Introductory Systems Development 3
Bus 352 Modern Information Technology 3
Bus 355 Systems Analysis & Design 3
Bus 453 Database Design 3
IS electives: at least two courses selected from the following 6
- Bus 378 Project Management
- Bus 439 Systems & Simulation
- Bus 452 Business Telecommunications Management
- Bus 454 Current Issues in Information Systems
- Bus 455 IS Project

Communications elective: one course (in additional to those taken to meet the CBE requirement) selected from the following 3
- Comm 331 Conflict Management
- Comm 433 Organizational Communication Theory & Research
- Engl 313 Business Writing
- Engl 317 Technical & Engineering Report Writing
- Phil 201 Critical Thinking

Restricted electives: two additional courses from the IS electives or from the following 6
- Bus 418 Organization Theory
- Bus 427 Services Marketing
- Bus 472 Operations Planning & Scheduling
- Acct 381 Accounting for Managers & Investors or 385 Cost & Management Accounting (not both)
- Acct 492 Auditing & Controls
- Art 372 Interface Design IV (3 cr)
- Any course from computer science numbered 300 and above
- Econ 453 Econometrics
- Geog 385 GIS Primer or 470 Computer Mapping (not both)
- ME 409 Human Factors in Engineering Design

In addition to all other requirements, students must take at least 9 credits from outside the CBE in addition to those specifically required. These may be chosen from the restricted electives or from other courses.

MANAGEMENT AND HUMAN RESOURCES (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 381 Accounting for Managers & Investors 3
Bus 412 Human Resource Management 3
Bus 413 Organizational Behavior 3
Bus 418 Organization Theory 3
And one of the following emphases:

MANAGEMENT EMPHASIS

Bus 414 Entrepreneurship 3
One of the following courses 3
- Bus 378 Project Management
- Bus 456 Quality Management
- Bus 470 Purchasing & Materials Management
- Bus 472 Operations Planning and Scheduling

One of the following courses 3
- Bus 323 Promotional Strategy
- Bus 324 Buyer Behavior
- Bus 326 Marketing Channels Management
- Bus 422 Sales Force Management
- Bus 425 Retail Distribution Management
- Bus 427 Services Marketing

One of the following courses 3
- Bus 302 Intermediate Financial Management
- Bus 362 Real Property Appraisal
- Bus 364 Insurance
- Bus 407 Financial Institutions
- Bus 481 International Finance

One additional course selected from those not taken in the three groups above 3
One of the following courses 3
- Comm 235 Organizational Communication
- Comm 331 Conflict Management
- Comm 433 Organizational Communication Theory & Research
- Psyc 320 Introduction to Social Psychology

In addition to all other requirements, students must take at least 9 credits from outside the CBE in addition to those specifically required.

HUMAN RESOURCES MANAGEMENT EMPHASIS

Bus 416 Staffing & Compensation 3
Bus 441 Labor Relations 3
One of the following courses 3
- Psyc 316 Industrial Psychology
- Psyc 430 Tests & Measurements
- Psyc 435 Personnel Psychology
- Psyc 450 Training & Performance Support

One of the following courses 3
- Comm 235 Organizational Communication
- Comm 331 Conflict Management
- Comm 332 Communication & the Small Group
- Soc 322 Racial & Ethnic Relations

In addition to all other requirements, students must take at least 6 credits from outside the CBE in addition to those specifically required.

MARKETING (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 381 Accounting for Managers & Investors 3
Bus 323 Promotional Strategy 3
Bus 324 Buyer Behavior 3
Bus 421 Marketing Research & Analysis 3
Bus 428 Marketing Management 3
One of the following communication courses 3
- Comm 233 Interpersonal Communication
- Comm 235 Organizational Communication
- Comm 331 Conflict Management
- Comm 332 Communication & the Small Group

Two of the following CBE marketing electives 6
- Bus 326 Marketing Channels Management
- Bus 422 Sales Force Management
- Bus 425 Retail Distribution Management
- Bus 427 Services Marketing
- Bus 453 Database Design
- Bus 456 Quality Management
- Bus 470 Purchasing & Materials Management
- Bus 482 International Marketing

Two of the following non-CBE marketing electives (approved by the student's marketing adviser) 6
- Comm 265 Advertising & Society
- Comm 360 Broadcast Media Advertising
- Comm 362 Print Media Advertising
- Comm 364 Advertising Media Planning
- Geog 200 World Regional Geography (if not taken to fulfill UI core social science requirement)
- Geog 340 Business Location Decisions
- Geog 360 Population Dynamics & Distribution
- Geog or LArc 385 GIS Primer
- Phil 201 Critical Thinking
- Psyc 316 Industrial Psychology
- Psyc 320 Introduction to Social Psychology
- Psyc 325 Cognitive Psychology
- Soc 314 Society & Self
- Stat 401 Statistical Analysis
- Stat 422 Sampling Methods
- Stat 457 Nonparametric Statistics

In addition to all other requirements, students must take at least 6 credits from outside the CBE in addition to those specifically required.

PRODUCTION/OPERATIONS MANAGEMENT (B.S.Bus.)

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Acct 381 Accounting for Managers & Investors or 385 Cost & Management Accounting 3
Bus 378 Project Management 3
Bus 439 Systems & Simulation 3
Bus 456 Quality Management 3
Bus 470 Purchasing & Materials Management 3
Bus 472 Operations Planning & Scheduling 3
Two courses selected from the following 6
- Acct 305 Accounting Information Systems
- Acct 486 Contemporary Management Accounting Issues
- Acct 492 Auditing & Controls
- Bus 355 Systems Analysis & Design
- Bus 412 Human Resource Management
- Bus 413 Organizational Behavior
- Bus 418 Organization Theory
- Bus 441 Labor Relations
- Bus 453 Database Design
- Bus 478 Seminar in Operations Management

In addition to all other requirements, students must take at least 12 credits from outside the CBE in addition to those specifically required.

Academic Minor Requirements

BUSINESS MINOR

This minor is not open to students pursuing other college business options (e.g., foreign language/business option, music/business option, forest products/business option) or to students pursuing a major in the College of Business and Economics.

Students in the business minor must achieve at least a 2.35 GPA in statistics, economics, and accounting courses before enrolling in upper-division CBE courses.

Five of the following courses (or Bus 340-345) 15
- Bus 101 Introduction to Business Enterprises
- Bus 301 Financial Management
- Bus 311 Introduction to Management
- Bus 321 Marketing
- Bus 350 Management Information Systems
- Bus 370 Production/Operations Management

Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
Econ 202 Prin of Economics or 272 Foundations of Econ Analysis 3-4
Stat 251 Prin of Statistics or 271 Statistical Inference & Decision Analysis or Stat 301 Probability & Statistics 3-4

INTERNATIONAL BUSINESS MINOR

Note: This minor is limited to students majoring in the College of Business and Economics.

Bus 380 International Business (or Bus 345) 3
Bus 481 International Finance 3
Bus 482 International Marketing 3
Econ 446 International Economics 3
PolS 237 International Politics 3
One of the following courses or another approved elective 3
- Econ 390 Comparative Economic Systems
- Econ 415 Marketing Structure & Governmental Policy
- Econ 447 Economics of Developing Countries
- FLEN 307 The European Union
- PolS 440 International Organizations & International Law
- PolS 465 Politics & the Economy

Foreign language mastery is required equivalent to completion of the introductory and intermediate courses, and an upper-division course in a language. A semester of study and/or internship in another country is recommended. CBE students currently have direct access to academic programs at Växjö University (Sweden), Ecole Supérieure de Commerce de Chambéry (France), Pontifica Universidad Católica del Ecuador, Griffith University (Australia), Fachhochschule fur Technik und Wirtschaft Berlin (Germany), University of Zaragoza (Spain), Haagse Hogeschool (The Netherlands), the Southern Denmark Business School, and the University of Newcastle upon Tyne (United Kingdom). Further, CBE students have access to programs in Australia, Chile, France, Italy, and Spain through the University Studies Abroad Consortium, and to numerous schools in various countries through the International Student Exchange Program. Internships are developed on an ad hoc basis.

Department of Chemical Engineering

Wudneh Admassu, Dept. Chair (312 Buchanan Engr. Lab. 83844-1021; phone 208/885-6793). *Faculty:* Wudneh Admassu, Thomas E. Carleson, David C. Drown, Louis L. Edwards, Jr., Roger A. Korus, Jin Y. Park, Margrit von Braun.

Chemical engineering combines the science of chemistry with the discipline of engineering in order to solve problems and to increase process efficiency. One of the most attractive aspects of a chemical engineering future is the variety of work available. Chemical engineering is a blend of physics, chemistry, and mathematics; thus, a chemical engineer possesses a versatility that gives him or her many opportunities for employment in fields such as pulp and paper, environmental engineering, food products, nuclear power, petroleum and petrochemicals, semiconductors, synthetic fuels, radioisotope applications, plastics and polymers, pharmaceuticals, education, biomedical engineering, computer applications, alternate energy sources, steel, and textiles. A chemical engineer can choose work in any of the following areas: research and development, design and construction, operations, management, teaching, or technical sales.

The mission of the Department of Chemical Engineering is to provide quality educational programs firmly based in fundamental concepts and to perform and publish outstanding chemical engineering research. The goals and objectives of the program include graduating students who are (1) well grounded in the fundamentals of chemical engineering, (2) schooled in the practice of chemical engineering including the social and economic implications of engineering analysis and design, and (3) instilled with a sense of responsibility, ethics, and a commitment to life-long learning. The department is committed to (1) maintaining experienced, professional instructors, modern facilities, and close interaction between the department and the chemical engineering community, (2) extending the knowledge base in chemical engineering through research, continuing education, technology transfer, and engineering practice, and (3) providing these services in the most cost effective manner for both students and taxpayers. Progress toward these goals and objectives is assessed by student performance on the nationally administered Fundamentals in Engineering Examination, exit interviews with graduating students, and surveys of graduated students and their employers.

The faculty of the Department of Chemical Engineering is dedicated to excellence in teaching. It is the faculty's goal to provide the students with a strong, well-rounded background for immediate entry into the industrial workforce or for graduate study. This background includes the theoretical aspects of chemical engineering as well as practical work experiences. Thus, most of the equipment that is installed in the Chemical Engineering laboratory is on the scale of pilot plant equipment. Because much of the equipment is made of glass, students are able to see at a glance what processes occur and where the streams are flowing. The department has a two-story distillation column, a gas absorber, two types of evaporators, a two-stage chemical reactor, a catalytic reactor, liquid extraction equipment, membrane based gas separation, process control lab, and supporting analytical equipment such as gas chromatographs. All of this equipment is used by undergraduate students. Proof that the departmental goals are being achieved is in the job-placement statistics for chemical engineers from UI. Most receive job offers before graduation and many graduates now hold high-level technical and management positions in industry, government, and academia.

The department has available a number of fellowships and assistantships for students. Support includes fellowships from the Potlatch Foundation, Weyerhaeuser Company, and Mead Corporation; UI graduate assistantships; and research assistantships. Entering graduate students must normally hold a B.S. in chemical engineering.

The graduate program in chemical engineering also includes provisions for study leading to a master's degree in chemical engineering for students who have a B.S. degree in a related field. Students will be required to register as undergraduates for as many semesters as it takes to meet prerequisites to the courses required in the M.S.(Ch.E.) degree program..

Graduate studies in this department are highly diversified in order to accommodate the needs of most students who have a good basic background in the physical sciences, mathematics, and engineering. Areas of expertise include optimization and process design, energy conversion, air pollution control, bioremediation, chemical reaction engineering, transport phenomena, biochemical engineering, and membrane based: gas separation, liquid/solid separation and mammalian cell and biological products. The Graduate Record Examination is not required, but is recommended.

Courses

See part 6 for courses in Chemical Engineering (ChE).

Undergraduate Curricular Requirements

CHEMICAL ENGINEERING (B.S.Ch.E.)

Required course work includes the university requirements (see regulation J-3) and:

ChE 110 Introduction to Chemical Engineering 1
ChE 123 Computations in Chemical Engineering 2
ChE 223 Material & Energy Balances 3
ChE 326 Chemical Engineering Thermodynamics 3
ChE 330 Stagewise Operations 3
ChE 340-341 Transport & Rate Processes I-II 8
ChE 423 Reactor Kinetics & Design 3
ChE 433, 434 Chemical Engineering Lab I, II 2
ChE 444 Process Analysis & Control 3
ChE 445 Digital Process Control 3
ChE 453-454 Chemical Process Analysis & Design 6
ChE 491 Seminar 1
Chem 111-112 Principles of Chemistry I-II 8
Chem 277, 278 Organic Chemistry I & Lab 4
Chem 305, 307 Physical Chemistry & Lab 4
Chem 372, 374 Organic Chemistry II & Lab 4
Engr 210 Engineering Statics 3
Engr 240 Introduction to Electrical Circuits 3
Engr 320 Engineering Thermodynamics & Heat Transfer 3
Engr 335 Engineering Fluid Mechanics 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
Phys 211-212 Engineering Physics I-II 6
Chemical engineering electives 3
Chemical/bioscience electives 4
Computer science elective in a programming language 2
Economics elective 3
Engineering electives 3
Humanities and social sciences electives 12
Communication electives 2
Mathematics electives 3
Technical electives 3

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in chemical engineering must earn a grade of C or better in each of the following courses before registration is permitted in upper-division chemical engineering courses: Chem 111 and 112, ChE 223, Engr 210 and 320, and Math 275 and 310.

Students transferring ChE 223 or its equivalent from a university without an ABET accredited chemical engineering program must pass a test on the subject matter of this course before acceptance of the course for certification.

A passing grade (D or higher) is required in each of the following courses before registration is permitted in upper-division chemical engineering courses: ChE 123, computer science elective, Math 170 and 175, and Phys 211 and 212.

Any student majoring in chemical engineering may accumulate no more than four grades of D or F in UI mathematics, science, or engineering courses that are used to satisfy junior certification requirements. Included in this number are multiple repeats in a single class or single repeats in multiple classes. A warning will be issued in writing to students who have accumulated two grades of D or F in UI mathematics, science, or engineering courses used to satisfy curricular requirements.

An average GPA of at least 2.0 is required for all chemical engineering courses used to satisfy the curricular requirements.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Chemical Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. General M.S. requirements apply.

Master of Engineering. General M.Engr. requirements apply.

Doctor of Philosophy. While most students entering the graduate program possessing only the bachelor's degree will first earn the M.S., it is possible to bypass the M.S and work directly toward the Ph.D. Students electing this option will be expected to critically analyze a current research area as part of their degree requirements. This will constitute their Ph.D. qualifying examination. For others, the oral M.S. thesis examination serves as the Ph.D. qualifying examination. A written research proposal modeled after those submitted to such agencies as the National Science Foundation is required as part of the requirements for the Ph.D.

Department of Chemistry

Chien M. Wai, Dept. Chair (116 Malcolm M. Renfrew Hall 83844-2343; phone 208/885-6552; e-mail cwai@uidaho.edu). *Faculty:* Thomas E. Bitterwolf, I. Francis Cheng, Leszek Czuchajowski, W. Daniel Edwards, T. Rick Fletcher, Steven D. Gammon, Peter R. Griffiths, Sharon J. Hutchison, James R. Jeitler, Robert L. Kirchmeier, Jeanne L. McHale, Nicholas R. Natale, Pamela J. Shapiro, Jean'ne M. Shreeve, Ray von Wandruszka, Chien M. Wai, Richard V. Williams.

Chemistry is the central science—the foundation on which a variety of applied and nonapplied disciplines build. Chemistry deals with the composition, structure, and properties of substances and the changes they undergo. It is the study of the materials of which the entire universe is composed. Chemistry graduates will find an impressive array of options and exciting opportunities in fields such as basic research, environmental protection, instrumentation, the search for and synthesis of new therapeutic drugs, new product and process development, technical marketing, market research, forensic chemistry, teaching at all levels, and information science. Moreover, an education in chemistry is valuable in health sciences such as medicine, pharmacology, clinical chemistry, and industrial hygiene. It can be useful as well in nontechnical areas such as advertising, journalism, patent law, banking, and investment counseling. The options are bounded only by the limits of one's imagination.

There are four distinct undergraduate curricula designed to meet a wide range of professional needs. The general chemistry curriculum leading to the B.S. degree provides a suitable foundation in chemistry for aspiring secondary-school teachers or for medicine. Even so, this is a subminimal curriculum for students who wish to become professional chemists. The professional curriculum (B.S.) is strongly recommended for students who are interested in practicing chemistry as a career, including graduate study for an advanced degree in chemistry or a related field. The degree is certifiable to the American Chemical Society. For those interested in information science, the technical literature curriculum (B.S.) is recommended. The combination of chemistry with marketing or business can be accomplished via the B.Tech. degree, which gives an excellent foundation for a successful career in sales or business.

Students majoring in chemistry at UI have the very good fortune to interact with an award-winning, distinguished teaching faculty. They have a unique opportunity to participate in undergraduate research in a nurturing environment where they work side by side with graduate students, postdoctoral fellows, and faculty members. Very often the research carried out by undergraduates results in publications in leading chemical journals. As a result of the strong research programs in the department, undergraduates have the opportunity in their courses to have hands-on experience with, or to acquire data from, modern sophisticated instrumentation such as FT nuclear magnetic resonance spectrometers, gas chromatographs interfaced with mass spectrometers, and laser Raman, infrared and ultraviolet spectrometers, in addition to the more classical techniques. Considerable use of computers is made in laboratory courses and as an aid to instruction. Because our students receive a first-class education, they are in demand by prospective employers and graduate schools.

M.S. and Ph.D. degrees are offered in chemistry with concentrations in analytical, inorganic, organic, and physical chemistry. The M.A.T. degree is also offered.

Entering graduate students (master's and doctoral candidates) are expected to demonstrate proficiency in chemistry by taking a series of four examinations in the areas of analytical (qualitative, quantitative, and instrumental), inorganic, organic (including qualitative organic analysis), and physical chemistry. These must be taken at the first offering after the student's arrival. These examinations are offered immediately before registration week of the fall and spring semesters. Questions are at an advanced undergraduate level.

Students who score at greater than the 50th percentile (established nationally) on a qualifying examination may begin with a 500-level course in that area in their first semester and are given credit for the relevant 400-level course (Chem 455, 466, 476, and/or 496). Students who score below the 50th percentile on an examination will begin course work in the respective area: analytical, Chem 454 (the laboratory in this course may be bypassed by petition if the student can present evidence—previous course at B level—of adequate exposure); physical, Chem 495; inorganic, Chem 463; organic, Chem 473.

All candidates for the M.S. or Ph.D. degree in chemistry are required to have teaching experience, here or elsewhere, as part of their training and will complete Chem 506 (Introduction to Teaching and Research Skills) at their first opportunity on entering the program.

Courses

See part 6 for courses in Chemistry (Chem).

Undergraduate Curricular Requirements

CHEMISTRY: GENERAL (B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 277, 372 Organic Chemistry I, II 6
Chem 278, 376 Organic Chemistry Lab I, II 3
Chem 305-306 Physical Chemistry 6
Chem 307-308 Physical Chemistry Lab 2
Chem 409 Proseminar 1
CS 101 Introduction to Computer Science or higher CS course 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Phys 211, 212, 213 Engineering Physics I, II, III 12

This is a subminimal curriculum for students wishing to enter the profession of chemistry, but it will provide a suitable foundation in chemistry for students who intend to enter secondary-school teaching or medicine.

CHEMISTRY: PROFESSIONAL (B.S.)

Note: Students who complete this curriculum will be certifiable to the American Chemical Society.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, the courses listed in the "Chemistry General" curriculum (above), and:

Chem 454 Instrumental Analysis 4
Chem 463-464, 465 Inorganic Chemistry & Lab 7
Foreign language courses 8

and two additional chemistry courses having Chem 306 as a prerequisite, or an alternate upper-division course in math or physics in combination with one chemistry course having Chem 306 as a prerequisite.

CHEMISTRY: TECHNICAL LITERATURE (B.S.)

Required course work includes the university requirements (see regulation J-3), general L&S requirements for the B.S. degree, and:

Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 277, 372 Organic Chemistry I, II 6
Chem 278, 376 Organic Chemistry Lab 3
Chem 305-306 Physical Chemistry 6
Chem 307-308 Physical Chemistry Lab 2
Chem 409 Proseminar 1
Chem 441 Chemical Literature 1
Chem 463 Inorganic Chemistry 3
CS 101 Introduction to Computer Science or higher CS course 3
Engl 317 Technical & Engineering Report Writing 3
Fren 101-102 Elementary French I-II 8
Germ 101-102 Elementary German I-II 8
Germ 201-202 Intermediate German I-II 8
Math 170, 175, 275 Analytic Geometry & Calculus 11
Phys 211, 212, 213 Engr Physics I-II-III or 111-112 General Physics I-II 8-12

CHEMISTRY: TECHNOLOGICAL (B.Tech.)

Note: Students who complete this curriculum will be certifiable to the American Chemical Society.

Required course work includes the university requirements (see regulation J-3) and:

Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 277, 278 Organic Chemistry I & Lab 4
Chem 305-306 Physical Chemistry 6
Chem 307-308 Physical Chemistry Lab 2
Chem 372, 376 Organic Chemistry II & Lab 5
Chem 409 Proseminar 1
Chem 454 Instrumental Analysis 4
Chem 463-464, 465 Inorganic Chemistry & Lab 7
Acct 201 Introduction to Financial Accounting 3
BLaw 265 Legal Environment of Business 3
Bus 321 Marketing 3
Comm 101 Fundamentals of Public Speaking 2
CS 101 Introduction to Computer Science or higher CS course 3
Econ 201, 202 Principles of Economics 6
Engl 317 Technical & Engineering Report Writing 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 330 Linear Algebra 3
Phys 211, 212, 213 Engineering Physics I, II, III 12
Stat 251 Principles of Statistics 3
Two courses in chemistry that require Chem 306 as a prereq, or one chemistry course requiring Chem 306 as a prereq and one upper-division course in math or physics 6

It is strongly recommended that students take at least one year of German or Russian and ChE 223 (Material and Energy Balances).

Academic Minor Requirements

CHEMISTRY MINOR

This program is designed to give a non-chemistry major a sufficient background in general chemistry and laboratory techniques to improve his or her employment prospects as a laboratory technician and to improve the technical background of the student interested in science education or communication.

Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 277, 278 Organic Chemistry I & Lab 4
Chem 302, 303 Principles of Physical Chemistry & Lab 4
Chem 372 Organic Chemistry II 3

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Chemistry. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. (A) Thesis option: General M.S. requirements apply. At least one credit must be earned in Chem 501. (B) Nonthesis option: A minimum of 30 credits in course work is required and must be divided among the following: (1) 20 credits in chemistry courses numbered 500 or above (including one credit in Chem 501); (2) 10 credits in chemistry courses numbered 400 or above, or related courses numbered 300 or above. A written and/or oral examination that covers graduate course work must be taken during the final semester in residence.

Master of Arts in Teaching. General M.A.T. requirements apply. If not already completed as an undergraduate, the following courses are required: Chem 302 and 303 or, recommended, Chem 305 and 307 (which have higher prerequisite requirements); also, Chem 372, and 435 or 454; some research experience in Chem 491 is also desirable. The four credits in electives are to be taken in 300-, 400-, or 500-level courses in biology, physics, or mathematics.

Doctor of Philosophy—Major in Chemistry. The student will enroll for at least 33 credit hours in courses. All students will take Chem 509 (Advanced Physical Chemistry) and obtain two credits in Chem 501 (Seminar). In addition, sufficient credit hours of research will be completed to meet a total minimum registration requirement of 78 credits.

The student is encouraged to take courses in related fields, e.g., mathematics, physics, chemical engineering, geochemistry, computer science, electronics, or biochemistry. This work can be designated as the minor or supporting field on the study program.

All Ph.D. candidates are required to participate in seminar (Chem 501) while in residence, even though not formally registered for credit in this course. Registration may be for zero credit.

Cumulative examinations are general examinations in the student's field of specialization to judge the breadth of knowledge gained by the student from courses, lectures, and the literature, as well as the ability to use this knowledge in the solution of a variety of problems. Once started, a student must continue to take these examinations each time they are offered whenever the student is in residence and is eligible. If a given examination is not taken, a failing grade is received. Examinations are approximately three hours in length and are given four times each semester and, in exceptional cases, during the summer session. Normally, students will take examinations only in the chosen area of concentration, but they may elect to take them in other areas of chemistry. The student must obtain an average grade of 50% in eight examinations to continue in the Ph.D. program.

Shortly after completing the final cumulative examination, Ph.D. students are required to submit a written proposal on their doctoral research project and defend it at an oral examination by their graduate committee (Chem 590). The proposal will be limited to a maximum of 5,000 words, excluding the bibliography, and will consist of a statement of the proposed doctoral research problem, an in-depth discussion of the relevant literature, a listing of the major research objectives, a summary of the proposed experimental work plan, and an appropriate bibliography.

Doctor of Philosophy—Major in Biochemistry. A Ph.D. with major in biochemistry is offered by the Department of Microbiology, Molecular Biology and Biochemistry. See that departmental section for information on the degree.

Department of Civil Engineering

James H. Milligan, Dept. Chair (104 Buchanan Engr. Lab. 83844-1022; phone 208/885-6782). *Faculty:* Richard G. Allen, Fouad M. Bayomy, Roger L. Ely, John I. Finnie, Peter Goodwin, James H. Hardcastle, Zaher K. Khatib, Michael D. Kyte, Chyr Pyng Liou, James H. Milligan, Richard J. Nielsen, Howard S. Peavy, P. Steven Porter, Edwin R. Schmeckpeper, Sunil Sharma, Paul B. Voeller, Alfred T. Wallace.

Civil engineering consists of the application of scientific principles to the design, construction, and maintenance of public and private works that constitute the infrastructure for human populations. From a historical aspect, the pyramids of Egypt, the water resources systems that supported the agricultural society of ancient Babylonia and Assyria, the public buildings of Greece and Rome, the roads that linked the Roman Empire, and the railroads and barge canals of the early United States were all civil engineering projects that served the people of their times. Today's civil engineers are still involved in building and maintaining the infrastructure necessary for modern society to function. A civil engineer may be involved in the design and construction of highways, bridges, buildings, water conveyance systems, water and wastewater treatment plants, dams, airports, and other constructed projects. Civil engineers may also be involved in planning for traffic controls, food plain management, and water and air quality management. The graduates of civil engineering programs may work with consulting engineering firms, governmental agencies, construction contractors, or manufacturing industries.

In the foreseeable future, population growth and relocation should create a steady demand for infrastructure growth. The concept of environmentally sensitive and resource sustainable development is emerging as the tenet for future growth. Civil engineers will have to apply evolving technologies and develop innovative solutions to ensure wise stewardship of our limited natural resources. Students who enter civil engineering can anticipate a challenging and rewarding career.

Lower-division courses in civil engineering consist of a common core of basic courses in science, mathematics, and engineering required of most students within the college. Required course work in the junior and senior years provides the student with a broad background in civil engineering subjects while 15 credits of technical electives permit some specialization at the undergraduate level.

The Department of Civil Engineering occupies the first floor of the Buchanan Engineering Laboratory Building with some additional office and laboratory space in the basement and on the second floor of the building. Maintenance and replacement of existing equipment is provided by funds from research projects, from alumni donations, from lab fees, and from state educational funds. Instructional and research equipment include modern computing and data acquisition equipment.

The department offers three graduate degree programs in civil engineering: (1) Master of Science (30 credits, with thesis), (2) Master of Engineering (33 credits, nonthesis), and (3) Doctor of Philosophy (in limited specialty areas). It also offers the Master of Engineering with a major in engineering management. Course work requirements in each of the degree programs is relatively flexible depending on student interest and course availability. Financial assistance is available on a competitive basis in the form of instructional and graduate research assistantships. Students interested in graduate studies should select a specialty area in which they wish to study. Foreign students must have a TOEFL score of at least 550 for admission to any departmental graduate degree program.

Graduate study is offered with specialization in structures and structural mechanics, highway and pavement materials, soil mechanics, transportation, hydraulics and water resources, and sanitary engineering. Interdisciplinary programs of study are encouraged for interested students. As examples, students specializing in sanitary engineering may do considerable work in chemical engineering or biochemistry, and specialization in soil mechanics may involve study in geology or mining engineering.

The mission of the Department of Civil Engineering is to provide a high quality education at both the undergraduate and graduate level, emphasizing the needs of Idaho and the region. The goals and objectives of the program include graduating students that are (1) well grounded in the fundamentals of engineering and in the practice of civil engineering, (2) schooled in real-world scenarios that include the social and economic implications of engineered projects, and (3) instilled with a sense of responsibility, ethics, and a commitment to life-long learning. Additionally, the department is committed to (1) maintaining experienced, professional instructors, modern facilities, and close interaction between the department and the professional engineering community in Idaho, (2) extending the knowledge base in civil engineering through research, continuing education, technology transfer, and professional practice, and (3) providing these services in the most cost effective manner for both the students and the taxpayers. Progress toward these goals and objectives is assessed by student performance on the nationally administered Fundamentals of Engineering Exam, exit interviews with graduating students, surveys of graduated students and their employers, and by an external advisory committee composed of practicing civil engineers from the state and the region.

Courses

See part 6 for courses in Civil Engineering (CE) and Engineering Management (EM).

Undergraduate Curricular Requirements

CIVIL ENGINEERING (B.S.C.E.)

To graduate in this program, a minimum grade of C must be earned in all engineering, mathematics, and science courses used to satisfy the curriculum.

Any student majoring in civil engineering may accumulate no more than 14 credits of D or F in UI mathematics, science, or engineering courses that are used to satisfy graduation requirements. Included in this number are multiple repeats of a single class or single repeats in multiple classes and courses transferred from other institutions. A warning will be issued in writing to students who have accumulated 7 credits of D or F in UI mathematics, science, or engineering classes used to satisfy curricular requirements.

Required course work includes the university requirements (see regulation J-3) and:

CE 115 Introduction to Civil Engineering 2
CE 211 Engineering Measurements 3
CE 215 Civil Engineering Analysis & Design 2
CE 321 Hydrology 3
CE 322 Hydraulics 3
CE 323 Hydraulics Laboratory 1
CE 330 Fundamentals of Environmental Engineering 3
CE 342 Theory of Structures 3
CE 357 Properties of Construction Materials 3
CE 360 Fundamentals of Geotechnical Engineering 4
CE 372 Fundamentals of Transportation Engineering 4
CE 431 Design of Water & Wastewater Systems I 3
CE 441 Reinforced Concrete Design or 444 Steel Design 3
CE 491 Civil Engineering Professional Seminar 1
Chem 111-112 Principles of Chemistry I-II 8
Engr 105 Engineering Graphics 2
Engr 210 Engineering Statics 3
Engr 220 Engineering Dynamics 3
Engr 240 Introduction to Electrical Circuits 3
Engr 320 Engineering Thermodynamics & Heat Transfer 3
Engr 335 Engineering Fluid Mechanics 3
Engr 350 Engineering Mechanics of Materials 3
Engr 360 Engineering Economy 3
Engl 317 Technical & Engineering Report Writing 3
One of the following 3-5
  Biol 201 Introduction to the Life Sciences
  Chem 302 Principles of Physical Chemistry
  Geol 101 Physical Geology
  Geol 111 Physical Geology for Science Majors
  MMBB 250 General Microbiology
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
Phys 211 Engineering Physics I 3
Stat 301 Probability & Statistics 3
Humanities and social sciences electives, incl at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite 16
Technical electives (incl at least 9 cr from CE 421, 422, 432, 441, 444, 460, 473, 474, 475) 15

The minimum number of credits for the degree is 129, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Graduate Degree Programs

Graduate study is offered with specialization in the following subdisciplines of civil engineering: hydraulics and water resources engineering, environmental and sanitary engineering, structural engineering and structural mechanics, geotechnical engineering, and transportation engineering.

Master's Degrees. In addition to meeting the general requirements of the College of Graduate Studies stated in part 4 of this catalog, master's degree students are required to complete at least 12 credits of 500s level courses having a CE prefix, not including CE 500, 502, 503, 589, 597, 598, and 599. Master's degree students are required to complete at least 12 credits in courses associated with one of the subdisciplines of civil engineering listed above. The candidate must obtain grades of A or B in all courses submitted for the degree.

An approved thesis is required for Master of Science degrees. A maximum of 6 credits of CE 500, Master's Research and Thesis, can be used to fulfill M.S. degree requirements.

A minimum of 33 credits is required for the Master of Engineering degree. A thesis is not required and credit is not given for CE 500. A maximum of 3 credits of CE 502, Directed Study, can be used to satisfy M.Engr. degree requirements. M.Engr. students are required to demonstrate the ability to write a technical paper or report.

A final comprehensive examination conducted by the student's committee is required for master's degrees.

Applicants for admission to the master's degree programs generally will have a B.S. degree in civil engineering. Applicants with baccalaureate degrees in other majors are also eligible for admission; in these cases, after consultation with the student, deficiency courses will be specified by the student's advisory committee. Master's degree candidates not holding B.S. degrees in civil engineering are required to show evidence of completing a minimum of 16 credits of deficiency courses from the following list: CE 321, Hydrology (3 cr), CE 322, Hydraulics (3 cr), CE 330, Fundamentals of Environmental Engineering (3 cr), CE 342, Theory of Structures (3 cr), CE 357, Properties of Construction Materials (3 cr), CE 360, Fundamentals of Geotechnical Engineering (4 cr), CE 372, Fundamentals of Transportation Engineering (3 cr), and Engr 360, Engineering Economy (3 cr). Deficiency courses may be taken on a pass-fail basis, where passing is considered to be a grade of C or better.

Doctor of Philosophy. Persons interested in pursuing a doctoral degree must contact a correspondent in the department well in advance of admission to the Graduate College. Preliminary screening of candidates and program planning for those admitted are essential features of the Ph.D. program. Programs are offered with specialization in the following general areas: (1) water resources and hydraulics; (2) structures, structural mechanics, and construction materials; (3) geotechnical engineering with a major in soil mechanics; (4) transportation engineering; and (5) environmental engineering. The qualifying examination is written and/or oral, and the preliminary examination is written and oral. In addition, one of the following requirements must be satisfied: (1) satisfactory completion of a foreign language examination conducted by the Department of Foreign Languages and Literatures, or (2) completion of a humanistic-social study program approved by the Department of Civil Engineering.

School of Communication

Roy Alden Atwood, Director (201 Shoup Hall 83844-1072; phone 208/885-6458). *Faculty:* Roy Alden Atwood, Anna Banks, Stephen P. Banks, R. Kenton Bird, Martha J. Einerson, Sandra Haarsager, Patricia Hart, Debra L. Merskin, Michael Nitz, Connie Owens, Jane Pritchett, Mark Secrist, William P. Woolston. *Faculty Emeriti:* Bert C. Cross, Peter A. Haggart, Tom E. Jenness, Paul L. Miles.

Communication can be seen as the discipline that links other disciplines, a discipline that is vital if people, organizations, and governments are to cope with today's complex world. Students with degrees from the School of Communication pursue careers with newspapers and other print media; broadcasting, cable or satellite operations; public relations firms; advertising agencies; as practitioners of the visual arts; as communication specialists in private corporations and governmental agencies; or in other public and private communication enterprises. Graduates also pursue advanced degrees in communication.

The School of Communication provides theoretical and professional preparation in communication fields and also functions as an academic unit of the College of Letters and Science to provide communication courses to students in other fields of study and university general education core courses.

The school offers B.A. and B.S. degree programs in journalism and mass communication, public communication, and visual communication. Students seeking careers in print and broadcast journalism should enroll in the **journalism and mass communication** degree program; those interested in broadcasting, photography, digital imaging, and other areas of visual communication should enroll in the **visual communication** degree program; and those interested in advertising, organizational communication, and public relations should enroll in the **public communication** degree program. All three programs of study provide preparation for those who wish to seek advanced degrees in communication.

Students seeking the B.A. degree are required to have a demonstrable proficiency in a foreign language and those seeking the B.S. degree must complete an 18-credit minor or area of emphasis in a subject area outside those taught by the School of Communication.

Courses

See part 6 for courses in Communication (Comm).

Curricular Requirements

Note: Required courses in a student's major cannot be used to satisfy the distributional requirements for the College of Letters and Science.

School of Communication Requirements

All majors in the School of Communication are required to take Comm 101, Fundamentals of Public Speaking, Comm 111, Introduction to Communication Studies, Comm 121, Media Writing (freshman or sophomore year), one 3-credit course in computer science, either Stat 150 or Stat 251, and at least one course in the "visual" basic skill area as approved by the School of Communication. Candidates for the B.S. degree are required to complete an academic minor or area of emphasis of at least 18 credits outside the School of Communication. Students must obtain approval from the School of Communication to apply internship credit toward a degree from the school.

Comm 101, 111, and 121 must be completed with a grade of C or better before a communication major may enroll in any upper-division communication courses.

A minimum cumulative university grade-point average of 2.50 is required of students seeking upper-class standing in the school or graduating with any of the majors offered by the school. All students must meet the minimum grade-point average and have completed a minimum of 58 credits to enroll in any upper-division course (numbered 300 or above) offered by the school. Registration preference in all courses is given to School of Communication majors. In order to remain in good standing in the school, the 2.50 grade-point average must be maintained.

Note: Students using a catalog issued before 1991 must meet a minimum cumulative grade-point average of 2.25 as applied above.

A student who graduates with a major in the School of Communication must complete a minimum of 128 credits of which a maximum of 6 internship credits (3 credits in Comm 498 and 3 credits from another academic field) may be applied toward the 128-credit minimum.

JOURNALISM AND MASS COMMUNICATION (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L & S and School of Communication requirements for either the B.A. or B.S. degree, and:

- Comm 222 Reporting 3
- Comm 323 Public Affairs Reporting 3
- Comm 424 News Editing 3
- Comm 441 Ethics in Mass Communication 3
- Comm 444 Communication & Public Opinion 3
- Comm 445 History of Mass Communication 3
- Comm 448 Law of Mass Communication 3
- Upper-division communication courses 9

PUBLIC COMMUNICATION (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S and School of Communication requirements for either the B.A. or B.S. degree, and:

- Comm 233 Interpersonal Communication 3
- Comm 235 Organizational Communication 3
- Comm 252 Principles of Public Relations 3
- Comm 265 Advertising & Society 3
- Comm 441 Ethics in Mass Communication 3
- Comm 448 Law of Mass Communication 3
- Comm 450 Quantitative Research Methods 3
- Comm 451 Qualitative Research Methods 3
- Five additional upper-division courses from communication offerings that emphasize advertising, general communication, organizational communication, and/or public relations 15

Students seeking careers in advertising, organizational communication, public relations, or some other area of public communication should select their courses carefully when meeting the "additional courses" requirement listed above. Seek adviser guidance in the selection of courses to meet your career goals.

VISUAL COMMUNICATION (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L & S and School of Communication requirements for either the B.A. or B.S. degree, and:

- Comm 275 Introduction to Video Production 3
- Comm 281 Understanding Photography 3
- Comm 284 Experiences in Visual Thinking 3
- Comm 288 Introduction to Film Studies 3
- Comm 441 Ethics in Mass Comm or Comm 448 Law of Mass Comm 3
- Comm 489 Critical Issues in Visual Communication 3
- Two of the following 6
  - Comm 276 Intermediate Video Production
  - Comm 382 History of Photography
  - Comm 384 History of American Film
  - Comm 386 Documentary Film/Television
  - Comm 445 History of Mass Communication
- Art graphics/design course 2-3
- Six additional courses from the fields of photography, film, radio, television, or other visual arts (three courses must be numbered 300 or above) 17-18

Students seeking careers in broadcasting, photography, film, or other visual arts should select their courses carefully when meeting the "additional courses" requirement listed above. Advisers have lists of suggested courses.

Academic Minor Requirements

ADVERTISING MINOR

- Comm 111 Introduction to Communication Studies 3
- Comm 265 Advertising & Society 3
- Comm 360 Broadcast Media Advertising 3
- Comm 362 Print Media Advertising 3
- Comm 431 Professional Presentation Techniques 3
- At least two of the following 6
  - Comm 252 Principles of Public Relations
  - Comm 364 Advertising Media Planning
  - Comm 444 Communication & Public Opinion
  - Comm 448 Law of Mass Communication
  - Comm 468 The Advertising Agency

INTERPERSONAL COMMUNICATION MINOR

- Comm 101 Fundamentals of Public Speaking 2
- Comm 111 Introduction to Communication Studies 3
- Comm 233 Interpersonal Communication 3
- Comm 332 Communication & the Small Group 3
- Electives from the following (minimum credit) 10
  - Comm 132 Oral Interpretation
  - Comm 134 Nonverbal Communication
  - Comm 235 Organizational Communication
  - Comm 331 Conflict Management
  - Comm 333 Interviewing
  - Comm 347 Persuasion
  - Comm 431 Professional Presentation Techniques

JOURNALISM MINOR

Comm 111 Introduction to Communication Studies 3
Comm 121 Media Writing 3
Comm 222 Reporting 3
Comm 424 News Editing 3
Comm 448 Law of Mass Communication 3
Journalism-related courses selected with the adviser to meet specific career goals 6

PUBLIC RELATIONS MINOR

Comm 111 Introduction to Communication Studies 3
Comm 121 Media Writing 3
Comm 252 Principles of Public Relations 3
Comm 433 Organizational Communication Theory & Research 3
Comm 452 Public Relations Campaign Design 3
One of the following 3
- Comm 235 Organizational Communication
- Comm 354 Publications Editing
- Comm 431 Professional Presentation Techniques

VISUAL COMMUNICATION MINOR

Comm 111 Introduction to Communication Studies 3
Comm 121 Media Writing 3
Comm 275 Introduction to Video Production 3
Comm 284 Experiences in Visual Thinking 3
Comm 288 Introduction to Film Studies 3
Comm 441 Ethics in Mass Comm or Comm 448 Law of Mass Comm 3
Comm 445 History of Mass Communication 3

Department of Computer Science

Paul W. Oman, Dept. Chair (B40 Janssen Engr. Bldg. 83844-1010; phone 208/885-6589; chair@cs.uidaho.edu; www.cs.uidaho.edu. *Faculty:* James Alves-Foss, John W. Dickinson, James A. Foster, Deborah A. Frincke, W. Scott Harrison, Robert B. Heckendorn, Gurdeep S. Hura, William S. Junk, Axel W. Krings, Athur Lee, Ashley Morris, John C. Munson, Paul W. Oman, Molly W. Stock, David E. Thompson, Karen H. Van Houten.

Computer science is the systematic study of algorithmic processes that describe and transform information: their theory, analysis, design, efficiency, implementation, and application. It is a broad discipline with an ever growing array of opportunities. Graduates in this field can find employment in a wide spectrum of public and private enterprises.

The field of computer science encompasses many areas of specialization. One may find a personal niche in software development, systems development and hardware selection, studies of compatibility between hardware and software, language development and modification, or perhaps a combination of these and any number of other diverse computer-oriented applications and concepts. Because of this diversity in potential application areas, the computer scientist must be familiar with the language of the physical sciences, mathematics, and English. If the computer is to extend its role as a benefit to mankind, the computer scientist must be broadly educated and conversant with the many implications of the powerful tool that he or she is controlling and developing.

The Department of Computer Science was formed in 1981 and is in the College of Engineering. The Bachelor of Science in Computer Science has been offered at UI since 1977. This program consists of a carefully designed computer science core, surrounded by an extensive array of challenging technical elective courses. The core consists of courses in algorithms and data structures, programming languages, computer architecture, operating systems, files and database, theory of computation, and a senior capstone design sequence. All of these courses have important components of theory, abstraction, and design.

The Bachelor of Science program in computer science is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB).

Students in computer science have the unique opportunity to draw from the expertise of an outstanding faculty with extensive experience in industry, teaching, and research. Computers currently available to students include an extensive department network of UNIX, Linux, and NT workstations and several campus personal computer laboratories. The department has established two research laboratories: the Center for Secure and Dependable Software (CSDS) and the Software Engineering Test Lab (SETL). The importance of these labs can be seen from the range of private and government funding which supports the department's research in software engineering, computer security, and computer reliability. All major campus and department computer systems are networked together with Internet connections, providing a state-of-the-art computing environment.

A graduate degree in computer science from UI prepares a student for a lifetime of discovery. It enables the graduate to advance the state of the art in computing, not merely to keep up with it. The graduate program develops the student's critical thinking, investigatory, and expository skills. The student will learn the foundations of computer science theory and application, and the interaction between the two. By understanding the extent and limitation of current knowledge in computer science, the graduate will learn to understand what issues are important and why. He or she will acquire the methodological skills to resolve important open problems and tackle challenging new projects. The student will learn to present problems and solutions, both orally and in writing.

The study of computer science at the graduate level requires mathematical maturity, skill in the use of high-level and machine-level programming languages, and basic knowledge of computer hardware. Admission to this program is highly competitive. Students who wish to enter the master's or doctoral degree program must demonstrate competence in specific areas equivalent to the material covered in several of the undergraduate computer science core courses. Normally a Graduate Record Examination general (aptitude) score of 1700 or above is required, but this may be waived for individuals already having a graduate degree in computer science, or a closely related discipline, from an accredited college or university. International students for whom English is a second language must have a TOEFL score of 550 or higher. A 3.0 undergraduate GPA is required. Actual admission is based on a combination of undergraduate GPA and Graduate Record Examination scores.

The following courses are the minimum prerequisites necessary for admission to the master's or doctoral program: knowledge of a structured, high-level language; data structures; a full year of calculus; and discrete mathematics. A student who does not have an adequate background in computer science will be required to complete those courses in which he or she is deficient. Deficiency areas for graduate work in computer science are: compiler design; computer languages; operating systems; files and databases; computer architecture; and theory of computation. Credit for deficiency courses cannot be counted toward the total credits required for the graduate degree.

Courses

See part 6 for courses in Computer Science (CS).

Undergraduate Curricular Requirements

COMPUTER SCIENCE (B.S.C.S.)

Required course work includes the university requirements (see regulation J-3) and:

CS 102 Computer Science Orientation 1
CS 112 Introduction to Problem Solving & Programming 3
CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
CS 245 Computer Organization & Architecture 4
CS 310 Computing Languages 3
CS 341 Computer Operating Systems 4
CS 360 Database Systems 3
CS 401 Contemporary Issues in Computer Science 1
CS 445 Systems Program Design 4
CS 480, 481 Design 8
CS 490 Theory of Computation 3
CS 495 Analysis of Algorithms 3
Comm 101 Fundamentals of Public Speaking 2
CoE 243 Digital Logic 3
CoE 244 Logic Circuit Lab 1
Engl 317 Technical & Engineering Report Writing 3
Math 170, 175 Analytic Geometry & Calculus I, II 8
Math 176 Discrete Mathematics 3
Math 330 Linear Algebra 3
Phys 211-212 Engineering Physics I-II 8
Stat 301 Probability & Statistics 3
Upper-division electives selected to satisfy the credit distribution in the following three categories (for categories B and C, Math 400, 404, 499, and 513-519 may not be included) 15
- Category A—any upper-division CS course except 499 (6 cr)
- Category B—Math 275 or any upper-division Math or Stat course (3 cr)
- Category C—any upper-division CS, Math, Stat, or CoE course, including no more than 3 cr in CS 499 (6 cr)

Science electives 4
Broadening electives (a list of acceptable courses is available from the CS Dept; these courses may also be used to satisfy the humanities/social science core requirements) 19
Electives to total 128 cr for the degree ..... —

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in computer science must earn a grade of C or better in each of the following courses before registration is permitted in upper-division computer science courses: CS 112, 113, 213, and 245, and Math 170, 175, and 176.

Technical and undesignated electives may be chosen from other disciplines to allow students to develop individualized programs to meet personal and career goals. A planned area of emphasis may be developed by the student with his or her adviser. This plan requires the approval of the CS faculty.

Academic Minor Requirements

COMPUTER SCIENCE MINOR

CS 112 Introduction to Problem Solving & Programming 3
CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
Math 176 Discrete Mathematics 3
Upper-division electives in computer science 6

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Computer Science. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. No 300-level course that is required in the B.S.C.S. curriculum may be used to satisfy the requirements of the graduate degree.

Master of Science. The following are requirements for receiving an M.S. degree in computer science from UI. There is both a thesis and a nonthesis option, though in both options the student must complete courses in the graduate CS core and in a focused plan of study. In both options, the student must successfully complete at least 18 credit hours of 500-level courses and at least 18 credit hours of CS courses.

A graduate degree represents mastery of the theory underlying one's discipline. It is the foundation on which further study should be based. The graduate candidate must successfully complete three of the following core courses: CS 510, 541, 551, 581, and 590.

The student must acquire depth in at least one major area by developing a focused plan of study in consultation with the major adviser. This should be a program that investigates

some aspect of computer science in depth, consistent with the goals of the graduate program in computer science. Some examples of areas currently of interest to the faculty are: computer security, software engineering, evolutionary algorithms and artificial intelligence, and fault tolerant computing.

The thesis option requires at least 30 credit hours of study. Specific requirements are: graduate core, 9 credits; at least one semester of CS Graduate Seminar, CS 501, 1 credit; focused plan of study, at least 14 credits; and research and thesis, at least 6 credits. The thesis must be in the approved format and must represent significant scholarly achievement. The thesis must be presented at a public colloquium.

The nonthesis option requires at least 36 credit hours of study. Specific requirements are: graduate core, 9 credits; at least one semester of CS Graduate Seminar, CS 501, 1 credit; focused plan of study, at least 26 credits, up to 6 credits of which can be CS 580. At the end of the program, nonthesis students must pass a comprehensive examination that covers their graduate studies and is administered by their graduate program committee.

Doctor of Philosophy. A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and supervisory committee. As a part of the program the student is required to include at least two semesters of CS 501 (graduate seminar). The student must have at least one full semester of teaching experience, with the teaching assignment determined by the student's supervisory committee. There is no foreign language requirement. The student must satisfy the residency requirement by spending at least two terms at the Moscow campus or a suitable alternative approved by the student's graduate committee. The purpose of the residency requirement is to provide the student with access to facilities, faculty, and colleagues.

The qualifying examination is a written and/or oral examination, administered by the student's graduate committee, which covers fundamental areas of computer science. The preliminary examination is an examination with separate sections covering the material presented in the student's program of study. The student must produce a dissertation, presenting an original, significant contribution to computer science. The dissertation should be publishable, in whole or in part, and should demonstrate the ability of the candidate to successfully initiate and pursue a significant, original research project. A public presentation and defense of the final dissertation is required.

Department of Economics

S. M. Ghazanfar, Dept. Chair (315 Continuing Ed. Bldg. 83844-3240; phone 208/885-6294; e-mail econ@uidaho.edu). *Faculty:* Richard B. Coffman, Michael J. DiNoto, Ismail H. Genc, S. M. Ghazanfar, R. Ashley Lyman, Jon R. Miller.

Economics deals with how people choose among alternatives and then exchange with others based on these choices. Because many choices are made in the private sector of the economy, economics majors study consumer behavior, business behavior, and the workings of markets. Because many other choices are made in the public sector, economics majors study public finance, government decision-making, and the behavior of bureaucracies. Problems of inflation, unemployment, economic growth and development, regional and labor economics, and international trade are also studied.

However, because choice and exchange are basic to much human activity, the tools of economics are applicable to many areas of human behavior other than those conventionally thought of as economic. Increasingly, economic concepts are being used in other disciplines such as business, law, political science, history, and the social sciences. Thus, in addition to providing an understanding of economic phenomena, economics also provides a discipline of mind and an approach that are widely applicable. For these reasons, economics is often chosen as a major by students who do not intend to become professional economists. Economics has traditionally been attractive as a major to those preparing for careers in business, MBA study, law school, government, and public administration. Many successful business and professional people have majored in economics as undergraduates.

The wide applicability of economic training also means that there are many employment opportunities for professional economists. Careers as a professional economist usually require graduate training. The undergraduate majors provide an opportunity to prepare for successful graduate work. Students intending to attend graduate school in economics are expected to consult with faculty members for specific advice on their undergraduate course selections.

The department offers three undergraduate economics degree programs, one in the College of Business and Economics and two in the College of Letters and Science. The essential difference among these programs is that those in the College of Letters and Science require fewer business courses and allow more electives. The less structured programs in this college are in the liberal arts tradition. A minor in economics is also offered through the College of Letters and Science.

The Department of Economics also offers an integrated course of graduate study oriented toward policy analysis and applied studies. Two types of master's degrees are offered: (1) a thesis degree, which provides specialized research experience for careers requiring such expertise, and (2) a nonthesis degree, which provides a broader background for careers where research competence may be desirable but is not of primary importance.

Applicants for graduate study are considered on the basis of their prior academic performance and their potential for success in the program. The undergraduate degree need not be in economics, though a minor in economics is desirable. Students with a minimal background in economics will be required to take certain undergraduate courses that may not be included in the graduate study plan.

Courses

See part 6 for courses in Economics (Econ).

Undergraduate Curricular Requirements

ECONOMICS (B.S.Bus.)

This program is offered through the College of Business and Economics.

Students preparing for professional careers as economists in private business, government service, or careers where a broad knowledge of economics is useful should elect this curriculum.

Required course work includes the university requirements (see regulation J-3), the college requirements, and:

Econ 351 Intermediate Macroeconomic Analysis 3
Econ 352 Intermediate Microeconomic Analysis 3
Econ 353 Quantitative Economics & Forecasting or Econ 453 Econometrics 3
Econ 455 History of Economic Thought 3
Econ 490 Economic Theory & Policy 3
Additional upper-division cr in economics 6
Upper-division courses in related field areas, with approval of department 9

ECONOMICS (B.A.)

This program is offered through the College of Letters and Science.

Required course work includes the university requirements (see regulation J-3), the general College of L & S requirements for the B.A. degree, and:

Econ 201, 202 Principles of Economics; or Econ 272 Foundations of Economics and either Econ 201 or 202 or two more credits of an upper-division economics course* 6-7
Econ 351 Intermediate Macroeconomic Analysis 3
Econ 352 Intermediate Microeconomic Analysis 3
Econ 353 Quantitative Economics & Forecasting or Econ 453 Econometrics 3
Econ 455 History of Economic Thought 3
Econ 490 Economic Theory & Policy 3
Acct 201 Introduction to Financial Accounting 3
Math 130 Finite Mathematics or Math 143 Pre-calculus Algebra & Analytic Geom and Phil 202 Intro to Symbolic Logic 3-6
Stat 251 Principles of Statistics 3
Additional upper-division credits in economics 9-11
Upper-division credits in a combination of anthro, geog, hist, political sc, psych, or soc (at least 9 credits in one social sc) 15

* A total of six credits in this area is required. Students who have completed Econ 272 with a final grade of B or better may either complete at least two additional upper-division credits in economics or take Econ 201 or 202 for two credits. Students who have completed Econ 272 with a final grade lower than B must take either 201 or 202 for two credits.

ECONOMICS (B.S.)

This program is offered through the College of Letters and Science.

Required course work includes the university requirements (see regulation J-3), the general College of L & S requirements for the B.S. degree, and:

Econ 201, 202 Principles of Economics; or Econ 272 Foundations of Economics and either Econ 201 or 202 or two more credits of an upper-division economics course* 6-7
Econ 351 Intermediate Macroeconomic Analysis 3
Econ 352 Intermediate Microeconomic Analysis 3
Econ 353 Quantitative Economics & Forecasting or Econ 453 Econometrics 3
Econ 455 History of Economic Thought 3
Econ 490 Economic Theory & Policy 3
Acct 201 Introduction to Financial Accounting 3
Math 130 Finite Mathematics 3
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
Stat 251 Principles of Statistics 3
Additional upper-division cr in economics 9-11
Upper-division social sc credits (credits earned in math beyond the stated requirement will be accepted) 15

* A total of six credits in this area is required. Students who have completed Econ 272 with a final grade of B or better may either complete at least two additional upper-division credits in economics or take Econ 201 or 202 for two credits. Students who have completed Econ 272 with a final grade lower than B must take either 201 or 202 for two credits.

Academic Minor Requirements

ECONOMICS MINOR

This academic minor (with its five different areas) is offered through the College of Letters and Science.

Econ 201, 202 Prin of Econ or 272 Foundations of Econ Analysis 4-6
Econ 351 Intermediate Macroeconomic Analysis 3
Econ 352 Intermediate Microeconomic Analysis 3

And one of the following areas (with the permission of the student's adviser, the student may petition to have one substitute course for one of the following specific courses in the first four areas):

Forecasting
Econ 343 Money & Banking 3
Econ 353 Quantitative Economics & Forecasting 3
Econ 453 Econometrics 3

Public Policy
Econ 345 American Econ Dev or 390 Comparative Econ Systems 3
Econ 407 Public Finance or 408 State & Local Govt Finance 3
Econ 415 Market Structure & Governmental Policy 3

Development
Econ 430 Regional/Urban Economics 3
Econ 446 International Economics 3
Econ 447 Economics of Developing Countries 3

Economic Resources
Econ 385 Environmental Economics 3
Econ 441 Labor Economics 3
Course approved by student's adviser 3

General Economics
Upper-division economics courses approved by student's adviser and dept chair 9

Graduate Degree Program

The Department of Economics offers an integrated course of study oriented toward policy analysis and applied studies. After building a theoretical base and mastering the analytical tools, the student is led to apply theory and use the tools in the analysis of practical policy issues, both public and private.

Two types of M.S. degrees are offered: (a) a thesis degree, which provides specialized research experience for careers requiring such expertise, and (b) a nonthesis degree, which provides a broader background for careers where research competency may be desirable but not of primary importance. Both degrees require completion of at least 30 credits of work.

Applicants are considered based on evidence of prior performance and potential for success in the program. Students are encouraged to submit Graduate Record Examination scores and letters of recommendation. Non-native speakers of English must score at least 550 on the TOEFL exam. The undergraduate degree need not be in economics, although a minor in economics is desirable. Students with little background in economics, or other deficiencies, will be required to take certain undergraduate courses that may not be included in the graduate study plan.

Students admitted to the program must fulfill the requirements of the College of Graduate Studies and of the Department of Economics. Financial assistance is available on a competitive basis. See the College of Graduate Studies section of part 4 for the general requirements applicable to all M.S. degrees.

Education

N. Dale Gentry, Dean (301 Educ. Bldg. 83844-3080; 208/885-6772); Jeanne S. Christiansen, Associate Dean; Jerry L. Tuchscherer, Associate Dean.

The College of Education offers an M.Ed. degree with a major in educational technology as an interdisciplinary degree not directly aligned with a specific division within the college. It is designed to prepare candidates to be leaders in educational technology. Graduates with this degree will apply for jobs such as technology coordinator for districts and schools.

Applicants admitted to this program will already demonstrate a high level of technology literacy (hardware and operating systems) as well as prior hands-on experience with computers and educational systems (audiovisual systems; distance learning systems, e.g., microwave and compressed video; application software systems; and informational processing systems, e.g., word processing, databases, spreadsheets, presentations, and other application software systems). This will be demonstrated by the prerequisites or demonstrated competencies required. They will have demonstrated an interest in and an affinity for technology and a desire to move into leadership roles in this important area.

Courses

See part 6 for courses in Education (ED).

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Education. See the College of Graduate Studies section of part 4 for the general requirements applicable to the degree.

Master of Education. General M.Ed. requirements apply. Determination of completion of prerequisites or equivalent (ITED 328, Computer Operating Systems for Technology, ITED 382, Computer Hardware Technology, and ED 328, Introduction to Educational Technology) will be determined by the major professor and the college technology coordinator. Graduate-level electives in technology will be approved by the student's committee based on the student's career goals and program requirements. Courses will be selected from graduate programs at UI or other graduate-level institutions offering technology courses. Courses approved will be selected from, but not necessarily limited to, the following academic areas: industrial technology, business, computer science, architecture, and communication. Students will either complete a written comprehensive examination or complete a special final evaluation project approved by the major adviser and the college technology coordinator.

Department of Electrical and Computer Engineering

David P. Egolf, Dept. Chair (214 Buchanan Engr. Lab. 83844-1023; phone 208/885-6554; becky@ee.uidaho.edu; http://www.ee.uidaho.edu). ***Faculty:*** **Touraj Assefi, David H. Atkinson, Boris R. Bracio, John W. Dickinson, David P. Egolf, Joseph J. Feeley, Calvin L. Finn, James F. Frenzel, Karen Z. Frenzel, Herbert L. Hess, Gurdeep S. Hura, Brian K. Johnson, Axel Krings, Joseph D. Law, Arthur Lee, Harry W. Li, Kenneth V. Noren, James N. Peterson, Dennis M. Sullivan, Richard W. Wall, Richard B. Wells, Jeffrey L. Young.**

The Department of Electrical and Computer Engineering provides students the opportunity to receive a solid education in the fundamentals of electrical circuits, electronics, and electrical machines, as well as to explore advanced topics through technical elective courses taken primarily in the senior year. Included in the curriculum is a heavy emphasis on mathematics, along with courses in physics, chemistry, technical writing, humanities, and social sciences. This program, leading to the degree of Bachelor of Science in Electrical Engineering, produces graduates with the technical skills needed for stepping into challenging careers with a wide variety of companies and for continuing their education in new and changing areas.

The Department of Electrical and Computer Engineering, in cooperation with the Department of Computer Science, also offers a Bachelor of Science in Computer Engineering. This program, which includes intensive study of basic courses in electrical engineering and computer science, was created in response to high employer demand for computer engineering graduates.

Graduates in electrical engineering apply technical skills and knowledge to problems in such areas as energy, computers, instrumentation, microprocessors, electrical power, electronics, and communication systems. The range of needs in these areas provide career opportunities in design, production, reliability and quality control, research and development, marketing and sales, education, technical management, and plant operations. Demand for electrical engineering graduates suggests that employment opportunities are strong.

Electrical and computer engineering are extremely rewarding fields; they also are demanding occupations. The high-school student planning to enter an engineering career should prepare for entrance into UI by taking at least three years of mathematics (including advanced algebra and trigonometry) and three years of natural science (including chemistry and physics). Deficiencies in high school can be made up on campus, but at the cost of delaying the regular degree program.

On campus, the freshman year curriculum is similar for all engineering students. It is a busy year of adjustment and foundational study of science and mathematics. It involves graphics and written communication, introductory calculus, chemistry, physics, and computer programming.

Electrical Engineering. During the sophomore and junior years, the EE student continues with his or her academic program. This program is developed by consultation with an academic adviser from the EE departmental faculty. Students study topics in electronics, electrical machines, digital logic and microprocessors, electromagnetic fields, and analysis of signals and dynamic systems after taking introductory circuits and laboratories. These introductory courses allow students to experiment with single circuits and familiarize themselves with laboratory instruments. Additional laboratory classes during this time further develop the student's understanding of concepts presented in lecture classes while introducing some of the practical problems that arise in hardware.

As a senior, the student will take a two-semester sequence in electrical engineering design that involves both individual and team design projects. The senior student selects technical elective courses primarily from the advanced elective courses that are offered in electrical engineering. These include specialized topics in digital logic and design, computer methods in electrical power systems, feedback control systems, advanced electronics, communication theory, analysis and applications of microprocessors, and antennas and microwave devices.

Eighteen credits of technical elective courses are required by the Department of Electrical and Computer Engineering. Nine credits must be selected from the following list of core technical electives: [411], [421, 424], [435], [440, 441, 443], [452, 476], and [470, 477]. Only one course per bracketed area will count toward the nine credits. In addition to this requirement, three additional credits must be selected from any upper-division electrical engineering courses. The remaining six credits may be selected from either upper-division electrical engineering courses or appropriate supporting areas. These supporting areas include mechanical engineering, metallurgical engineering, civil engineering, chemical engineering, engineering science, computer science, physics, mathematics, and statistics.

The eighteen credits of technical electives are separate from, and in addition to, the required three credits of engineering science electives that must be chosen from upper-division courses.

Computer Engineering. The Computer Engineering Program provides students with solid training in the fundamentals of digital systems and computer software and prepares them for professional practice in computer engineering. Many modern systems depend on computers and other digital systems for performing tasks such as data collection, data processing, communication, and control. The Computer Engineering Program was created specifically to meet the high employer demand for graduates capable of developing these complex computer based systems. The design of such systems requires a solid understanding of the theory and application of both software and hardware to engineering solutions. This understanding extends to areas such as software engineering, digital systems and VLSI design, computer architecture, networking, and operating system design, microprocessor and microcontroller systems, and data communication systems. The wide range of needs in these areas provides career opportunities in design, production, reliability and quality control, and research and development. The continuing demand for computer engineering graduates creates an environment where employment opportunities are plentiful.

In addition to course work in CS and EE, the curriculum includes a heavy emphasis in mathematics, along with courses in physics, technical writing, humanities, and social sciences. This program, which leads to the degree of Bachelor of Science in Computer Engineering, produces graduates with the technical skills needed to pursue challenging careers in a wide variety of corporations and to continue their education in new and rapidly developing areas. The basic measure of the quality of this program is the placement and subsequent success of the graduates.

Computer engineering is a rewarding field and a demanding occupation. The high-school student planning to pursue an engineering career should prepare for entrance into UI by taking at least three years of mathematics (including advanced algebra and trigonometry) and three years of natural science (including chemistry and physics). Advanced-placement calculus courses may be helpful. Deficiencies in high school can be made up on campus, but at the cost of delaying the regular degree program.

Each student's program is developed in consultation with an academic adviser from the computer engineering faculty, who are members of either the CS or ECE department. The student's adviser assists the student by providing guidance in all academic areas. This guidance extends to general education, engineering science, and technical elective course selection, understanding and meeting the academic requirements of the university and the program, and planning a timely graduation.

The Computer Engineering Program draws on the strong electrical engineering and computer science programs and benefits from the outstanding facilities provided by these departments. The CS Department has offices and student laboratories in the Janssen Engineering Building (JEB) that are equipped with state-of-the-art Hewlett-Packard workstations and X-terminals to provide students with complete Internet access and software system design and development environments. The ECE Department has offices and teaching laboratories in the Buchanan Engineering Laboratory (BEL) and the Johnson Engineering Laboratory (JEL). The ECE laboratories consist of analog electronics, computers, electrical circuits, electrical

machines, digital logic, microprocessors, microwaves and communications, senior design, and VLSI/digital systems. The ECE computer laboratory includes a large number of desktop personal computer systems and a number of workstations and X-terminals. The VLSI/digital systems lab consists of state-of-the-art workstations for developing integrated circuit designs as well as FPGA-based designs. The other labs include computer systems to support circuit analysis and development. All of these systems are networked and provide for Internet access, software development, and hardware simulation, analysis, and development. There are also numerous university-wide state-of-the-art PC labs that are available for general student use and provide additional networking and software development resources.

The Department of Electrical and Computer Engineering has offices and laboratory rooms in two campus buildings, the Buchanan Engineering Laboratory (BEL) and the Johnson Engineering Laboratory (JEL). The eight laboratories consist of electronics, senior design, digital logic, computer engineering, and computers in BEL, and electrical circuits, microwaves and communications, and electrical machines in JEL. In addition, laboratory space is used for microprocessor system development and testing. The computer laboratory includes a large number of desk-top personal computer systems, a minicomputer system with many terminals, microprocessor instructional systems, and several specialized computer systems for developing microprocessor software and other dedicated computing.

Note: In addition to college requirements for admission to classes (see "Admission to Classes" under College of Engineering, part four), students majoring in electrical engineering or computer engineering must pass a qualifying examination as prerequisite to any upper-division course in electrical engineering or computer engineering. Adviser's approval is required for admission to all EE and CoE courses. Finally, adviser and department chair approval is required to take EE 480 and 481 during the summer session.

The areas of emphasis in the Department of Electrical and Computer Engineering are very large scale integrated circuits (VLSI), neural networks, communications systems, control systems, electromagnetics, analog and digital electronics, network analysis and synthesis, digital systems design, and electric power.

Courses

See part 6 for courses in Computer Engineering (CoE) and Electrical Engineering (EE).

Undergraduate Curricular Requirements

COMPUTER ENGINEERING (B.S.Comp.E.)

Required course work includes the university requirements (see regulation J-3) and:

CoE 243 Digital Logic 3
CoE 244 Logic Circuit Lab 1
CoE 245 Computer Organization & Architecture 4
CoE 341 Digital Systems Engineering 3
CoE 361 Microcontrollers 4
CoE 480-481 Computer Systems Design Projects 6
Comm 101 Fundamentals of Public Speaking 2
CS 112 Introduction to Problem Solving & Programming 3
CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
CS 341 Computer Operating Systems 4
CS 381 Software Engineering 3
EE 210, 211 Electrical Circuits I & Lab 4
EE 212, 213 Electrical Circuits II & Lab 5
EE 316, 317 Electronics I & Lab 4
EE 350 Signals & Systems Analysis 4
Engl 317 Technical & Engineering Report Writing 3
Math 170, 175 Analytic Geometry & Calculus I-II 8
Math 176 Discrete Mathematics 3
Math 310 Ordinary Differential Equations 3
Math 330 Linear Algebra 3
Phys 211, 212 Engineering Physics I-II 8
Stat 301 Probability & Statistics 3
Science elective selected from Chem 111, Ent 211, Geol 111, MMBB 154/155, or Phys 213 4
Humanities and social sciences electives, incl at least (1) one upper-division course that is the second course completed in that subject, or (2) a course that has another humanities-social science course as a prerequisite 18
Technical electives selected from upper-division computer engineering, electrical engineering (except EE 441), and computer science courses 12

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in computer engineering must pass the EE certification examination as prerequisite to any upper-division course in computer and electrical engineering. A grade of C or better is required in each of the following courses before registration is permitted in upper-division computer science courses: CS 112, 113, 213, CoE 245, Math 170, 175, 176. A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: CoE 243, 244, EE 210, 212, Math 170, 175, 310, Phys 211, 212.

ELECTRICAL ENGINEERING (B.S.E.E.)

Required course work includes the university requirements (see regulation J-3) and:

EE 210, 211 Electrical Circuits I & Lab 4
EE 212, 213 Electrical Circuits II & Lab 5
EE 243 Digital Logic 3
EE 244 Logic Circuit Lab 1
EE 292 Sophomore Seminar 0
EE 316, 317 Electronics I & Lab 4
EE 318, 319 Electronics II & Lab 4
EE 320 Electric Machinery 5
EE 330 Electromagnetic Theory 4
EE 350 Signals & Systems Analysis 4
EE 480-481 Senior Design 6
EE 491 Senior Seminar 0
Chem 111 Principles of Chemistry I 4
CS 112 Introduction to Problem Solving & Programming 3
Engr 105 Engineering Graphics 2
Engr 210 Engineering Statics 3
Engr 220 Engineering Dynamics 3
Engr 360 Engineering Economy 3
Engl 317 Technical & Engineering Report Writing 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
Math 330 Linear Algebra 3
Phys 211, 212 Engineering Physics I-II 8
Stat 301 Probability & Statistics 3
Upper-division engineering science elective chosen from Engr 320, 335, 350, or CE 402 3
Humanities and social science electives, including at least (1) one upper-division courses that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite 18
Technical upper-division electives (at least 12 cr from EE courses, including 9 cr from EE [411], [421, 424], [435], [440, 441, 443], [452, 476], and [470, 477]) 18

The minimum number of credits for the degree is 131, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in electrical engineering must earn a grade of C or better in each of the following courses before registration is permitted in upper-division electrical engineering courses: Chem 111, CS 112, EE 210, 211, 212, and 213, Engr 105, 210, and 220, Math 170, 175, 275, and 310, and Phys 211, 212. A grade of P is required in EE 292 before registration is permitted in upper-division engineering courses. In addition to college requirements for admission to classes (see "Admission to Classes" under College of Engineering, part four), students majoring in electrical engineering or computer engineering must pass a qualifying examination as prerequisite to any upper-division course in electrical engineering or computer engineering.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Electrical and Computer Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

COMPUTER ENGINEERING

The Computer Engineering Program offers both Master of Science and Master of Engineering degrees. Both degrees may be earned through the Engineering Outreach off campus program. These advanced degrees offer engineering students an opportunity to strengthen their knowledge of computer engineering by taking graduate courses that focus on advanced subject matter and by participating in research.

Qualifications for Admittance. Candidates must have a bachelor's degree in computer engineering, with an undergraduate GPA of 2.80 or higher. International students who are required to take the TOEFL examination by the College of Graduate Studies must have a TOEFL score of at least 550. All candidates must submit scores from the general portion of the Graduate Record Examination.

Candidates who do not have a bachelor's degree in computer engineering may be admitted to the graduate program if, in addition to the requirements for candidates who have a B.S.Comp.E., they meet the following minimum requirements.

1. A bachelor's degree in electrical engineering, computer science, or another engineering discipline or in a supporting area of study such as mathematics or physics.

2. Demonstrated proficiency in the fundamentals of computer engineering emphasized in the undergraduate curriculum. Proficiency is demonstrated by successful completion of the following fundamental courses: Electronics (EE 316), Digital Logic (CoE 243), Computer Organization and Architecture (CoE 245), Data Structures (CS 213), Discrete Mathematics (Math 176), Differential Equations (Math 310), Linear Algebra (Math 330). Some deficiencies may be removed by taking background courses through Engineering Outreach. Students with undergraduate course deficiencies in the fundamentals of computer engineering must remove these deficiencies prior to admission for graduate work. Such deficiency courses cannot be used for graduate credit.

3. At least two advanced undergraduate courses in electrical engineering, computer engineering, or computer science from the following list: Computer Operating Systems (CS 341), Digital Systems Engineering (CoE 341 or EE 440). Students with undergraduate course deficiencies in the advanced areas of computer engineering must remove these deficiencies either prior to admission or in the first three semesters of graduate work. Such deficiency courses cannot be used for graduate credit.

Master of Science. General M.S. requirements apply.

Master of Engineering. General M.Engr. requirements apply.

ELECTRICAL ENGINEERING

Master of Science. General M.S. requirements apply, except that the department requires at least 24 credits of course work in addition to a thesis. The master's program may provide advanced preparation for professional practice, or it may serve as the first step in graduate study leading to the Ph.D. degree. Specific courses to be taken for the program are not prescribed by the faculty. Students, with the assistance of their major professor, prepare their own program as soon as possible during their first semester, and submit it to the faculty for approval. To be approved, programs must satisfy both the university requirements governing the M.S. degree and the following department requirements:

1. At least 18 credits in electrical engineering courses numbered 500 or above.

2. Two or more electrical engineering courses numbered above 500 in a given area for depth.

3. At least one course in each of two areas (outside the areas selected under item 2) to provide breadth.

4. Enrollment in EE 591, Electrical Engineering Research Colloquium, during each semester of on-campus enrollment.

Master of Engineering. General M.Engr. requirements apply, except that the department requires at least 30 credits of course work. Students, with the assistance of their major professor, prepare their own program as soon as possible during their first semester, and submit it to the faculty for approval. To be approved, programs must satisfy both the university requirements governing the M.Engr. degree and the following department requirements:

1. At least 18 credits in electrical engineering courses numbered 500 or above.

2. At least three electrical engineering courses in a given area for depth, two of which must be numbered 500 or above.

3. At least one course in each of two areas (outside the areas selected under item 2) to provide breadth.

4. Enrollment in EE 591, Electrical Engineering Research Colloquium, during each semester of on-campus enrollment.

Doctor of Philosophy. General Ph.D. requirements apply. The preliminary examination consists of both a written and an oral examination. There is no foreign language requirement. Two semesters of EE 591, Electrical Engineering Research Colloquium, will be required for on-campus doctoral students.

Department of English

Douglas Q. Adams, Dept. Chair (200 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6156; englishdept@uidaho.edu). *Faculty:* Douglas Q. Adams, David S. Barber, Terryn L. Berry, Mary Clearman Blew, Steven R. Chandler, Richard J. Dozier, E. Phil Druker, Richard W. Fehrenbacher, Stephan P. Flores, Tina Foriyes, Candida Gillis, Richard G. Hannaford, Walter A. Hesford, D'Wayne Hodgin, Edward V. Hughes, Cheryl Johnson, Mary Ann Judge, Nancie E. McCoy, Ronald E. McFarland, Kerry E. McKeever, Jennie Nelson, Sheila O'Brien, Lance Olsen, Kurt O. Olsson, Joy Passanante, Richard Penticoff, Patricia Riley, Teoman Sipahigil, Hao Sun, Dene Kay Thomas, Gordon P. Thomas, Roger P. Wallins, Gary Williams, Robert A. Wrigley.

English majors develop skills in writing, textual interpretation, and critical thinking as they study the nature of language and learn how Anglo-American literary traditions develop and relate to world literature. Majors study a wide range of authors, male and female, upper class and working class, white and minority. They learn the formal qualities of texts as well as their historical and cultural contexts. Students write extensively in all courses and gain speaking experience through oral reports and class discussions. (For this reason, international students should have a TOEFL score of 560 or above.)

The early phases of the program emphasize literary traditions (Engl 257, 258, 341, 342, 343, 344), reading skills and textual analysis (especially Engl 210 and 295), and the study of Shakespeare (Engl 345). Advanced courses allow students to pursue individual interests in literature, expository and creative writing, literary criticism and theory, and linguistics.

Through requirements, course offerings, and advising, the Department of English encourages students to plan their curricula according to personal and career goals. Aspiring poets and novelists emphasize creative writing courses; film scholars take courses in film; future teachers of English as a Second Language (ESL) study linguistics; pre-professionals of all kinds take advanced writing courses. Those heading for graduate school in literature, linguistics, or ESL choose courses that prepare them for graduate study in their area. English majors who intend to teach English in secondary schools plan their program to satisfy state certification requirements (see "Secondary School Teaching Certification for Majors Outside the College of Education" in the College of Education section in part 4).

To enable students to focus on such interests within a coherent program of study, the English Department offers the choice of three emphases within the major: literature, creative writing, and preprofessional.

The Department of English offers four graduate degrees at the master's level: the M.F.A, the M.A., the M.A.T., the M.A. in Teaching English as a Second Language. Through course selection and choice of thesis topic, and with the approval of appropriate faculty members, students pursuing the M.A. may emphasize literary studies or studies in composition/rhetoric. Through course selection and choice of thesis topic, and with the approval of appropriate faculty members, those pursuing the M.F.A. may emphasize fiction, poetry, or creative nonfiction. Students planning to work for the M.F.A., M.A.. or M.A.T. should be well prepared through the curriculum outlined below. Those planning to pursue the M.A. in Teaching English as a Second Language should take extra course work in linguistics.

The purpose of the graduate program in English is to enable students to acquire a broad background in English and American language and literature and to develop specialized skills in independent, scholarly research and in mature, original criticism of literary works, to hone their skills as creative writers, or to deal with the theoretical and practical issues pertaining to English as a second language. The graduate program in English serves those who plan to teach English at junior or community colleges, those who plan to teach English at the secondary level, those who plan to seek employment in business, commerce, industry, or government, and those who plan to pursue the Ph.D.

For admission to the graduate program in English, the student must have a bachelor's degree with a major in English or equivalent preparation and should have an overall grade-point average of 3.00 (on a 4.00 scale) to be granted full admission. Non-native speakers of English must score at least 560 on the TOEFL exam.

Courses

See part 6 for courses in English (Engl).

Undergraduate Curricular Requirements

ENGLISH (B.A.)

Where specific courses are listed with the area requirements, the department may approve equivalencies.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and one of the following emphases:

LITERATURE EMPHASIS

- Engl 210 Reading - Writing - Texts 3
- Engl 257-258 Literature of Western Civilization 6
- Engl 295 Seminar in Literary Studies 3
- Engl 341-342 Survey of British Literature 6
- Engl 343-344 Survey of American Literature 6
- Engl 345 Shakespeare 3
- 400-level courses in literature before 1800 3
- Courses in linguistics 3
- English electives selected in consultation with adviser (at least 12 cr at the 400 level other than Engl 402 or 498) 18
- Related field approved by adviser 20

CREATIVE WRITING EMPHASIS

- Engl 210 Reading - Writing - Texts 3
- Engl 257-258 Literature of Western Civilization 6
- Engl 291-292 Creative Writing: Poetry or Fiction 6
- Engl 341-342 Survey of British Literature 6
- Engl 343-344 Survey of American Literature 6
- Engl 345 Shakespeare 3
- Engl 391 and/or 392 Creative Writing: Poetry and Fiction 3-6
- Engl 491 or 492 Advanced Creative Writing: Poetry or Fiction 3
- 400-level English courses in literature in any period 3
- 400-level English courses in literature before 1800 3
- Elective writing courses chosen from Engl 309 (may not be repeated), 404, 491, 492 (may be repeated); 498 (Internship: Editing of Literary Journal, may be repeated up to a maximum of 3 cr) 6-9
- Related field approved by adviser 20

PREPROFESSIONAL EMPHASIS

- Engl 210 Reading - Writing - Texts 3
- Engl 257-258 Literature of Western Civilization 6
- Engl 341 or 342 Survey of British Literature 3
- Engl 343 or 344 Survey of American Literature 3
- Two writing courses chosen from Engl 207, 208, 209, 309, 313, 317 6
- Elective English courses (at least 9 cr at the 400 level other than Engl 402 or 498) 15
- Courses outside the English Dept appropriate to student's career goals (at least 9 upper-div cr) 15
- Related field OR academic minor appropriate to student's career goals (at least 9 upper-div cr) 20

The preprofessional emphasis is an individualized program for students wishing to stress preparation for professions such as law, writing and editing, government service, and business. All course decisions are to be made in consultation with the student's English adviser and require the adviser's approval.

TEACHING CERTIFICATION

L&S English majors wishing secondary teaching certification must complete the appropriate English and education courses listed in the "Teaching Majors and Minors in the College of Education" section of this catalog. Some of these courses may be included in the student's English-major requirements. Students should plan their programs with their English advisers; they should also see College of Education advisers regarding certification requirements.

Academic Minor Requirements

ENGLISH MINOR

- Engl 210 Reading - Writing - Texts 3
- Two of the following courses 6
  - Engl 341-342 Survey of British Literature
  - Engl 343-344 Survey of American Literature
- Four English courses chosen from Engl 295 and any course at the 300 or 400 level, excluding nonmajors courses; at least two must be literature courses, and at least one must be at the 400 level 12

TEACHING ENGLISH AS A SECOND LANGUAGE MINOR

- Engl 404 Special Topics: ESL Methods or EDTE 474 Secondary School Foreign Language Methods 3
- Engl 441 Introduction to the Study of Language 3
- Engl 442 Introduction to English Syntax 3
- Anth/Soc 322 Racial & Ethnic Relations or Anth 261 Language & Culture 3
- ED 314 Strategies for Teaching 3
- Electives chosen from among other courses in English language and linguistics or from Anth 261 or 322 if not chosen above 6

WRITING MINOR

- One of the following courses 3
  - Engl 207 Persuasive Writing
  - Engl 208 Personal & Exploratory Writing
  - Engl 209 Inquiry-Based Writing
- Two of the following courses (if not taken above) 6
  - Engl 207 Persuasive Writing
  - Engl 208 Personal & Exploratory Writing
  - Engl 209 Inquiry-Based Writing
  - Engl 210 Reading - Writing - Texts
  - Engl 291 Creative Writing: Poetry
  - Engl 292 Creative Writing: Fiction
  - Comm 121 Media Writing
- Three of the following courses 9
  - Engl 309 Advanced Prose Writing
  - Engl 313 Business Writing

Engl 317 Technical & Engineering Report Writing
Engl 391 Intermediate Poetry Writing
Engl 392 Intermediate Fiction Writing
Engl 491 Advanced Creative Writing: Poetry
Engl 492 Advanced Creative Writing: Fiction
Engl 498 Internship (for a maximum of 3 credits)
Comm 425 Feature Article Writing
Engl 404 Special Topics: Studies in Rhetoric & Writing 3

The Writing Minor is not open to English majors.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of English. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Arts. Of the minimum of 33 credits required for the degree, at least 24 credits must be earned in the Department of English at the University of Idaho, and of these no more than nine credits earned at the Grace Nixon Summer English Institute may be applied to the degree. At least 27 credits must be at the 500s level. Course work for the M.A. in English is normally at the 500s level; however, up to six credits of work at the 400s level may be included, but only with the approval of the student's major professor and the department's director of graduate studies. Students are allowed to take 3 credits maximum in practicums applying toward the degree.

Students and their major professors and committees will design their programs.

Each candidate for the Master of Arts degree will complete a thesis. The student will complete 27 credits of course work and submit an acceptable thesis, for which a maximum of six credits may be obtained.

Theses may address topics in literature and literary criticism or composition and rhetorical theory.

Candidates for the master's degree in English are required to demonstrate reading proficiency in one of the following languages: French, German, Italian, Latin, Classical Greek, Spanish, or Russian.

Each student will take an M.A. examination following completion of the thesis in acceptable form, as confirmed by the thesis director. The oral examination will be designed to test the student's ability to defend his or her thesis articulately with respect to research methodology, critical perspective, and applicability to related work in the area.

Master of Arts in Teaching. The M.A.T. is a nonthesis degree designed for teachers who are certified in English and who wish to strengthen their English preparation and improve their teaching effectiveness.

Of the minimum of 33 credits required for the degree, at least 24 must be earned in the UI Department of English, and at least 24 credits must be at the 500 level (or equivalent, in the case of transfer credits). The remaining course work in English may be at either the 400 or 500 level (300-level courses are not acceptable toward the M.A.T. in English). Six credits must be taken in professional courses in education taught by the UI College of Education or equivalent college of education; at least 3 credits must be earned in a standard university course, as opposed to district in-service workshops. The student earns 3 credits for the M.A.T. teaching project. The combined number of credits earned in English in another graduate school or through correspondence study may not exceed nine; the College of Education may accept such credits in the professional courses in education at its discretion.

Area requirements for the degree, which may have been satisfied prior to enrolling in the M.A.T. program, include an upper-division or graduate course in each of the following areas: medieval through 18th-century literature, romantic through modern British literature; early American literature (before Civil War); later American literature; linguistics; history of the English language (or a second linguistics course); literature of women, minorities, third-world cultures, or non-dominant discourses. In addition, students must complete, or have completed within five years prior to enrolling in the M.A.T. program, course work in these areas: literary criticism; theory/practice of teaching literature to adolescents; theory/practice of teaching writing (may be satisfied by a Northwest Inland Writing Project course taken during the summer in a 3-credit or larger block). There is no language requirement for the M.A.T.

Master of Arts in Teaching English as a Second Language. The M.A. in TESL is intended for students who are interested in learning to teach English as a second language. The curriculum provides both theoretical background and practical training in the field. Students take course work in theoretical and applied linguistics and in teaching methods.

Of the minimum of 33 credits required for the degree, at least 24 must be earned while enrolled in residence at UI. At least 12 credits are to be taken from approved courses in language and linguistics, 9 credits are to be taken from approved courses in pedagogy, and 12 credits are to be taken from approved electives in English and education. At least 21 credits must be earned in courses numbered 500 and above.

TESL students will write either a thesis in addition to 27 credits of classes or take 33 credits of classes.

Native speakers of English in the TESL program must complete or have completed two years of college work (or its equivalent) in a modern foreign language. They must have studied a foreign language for at least one semester (or equivalent) within the preceding five years. Non-native speakers of English are excused from this requirement.

In the second year candidates will take a comprehensive examination on linguistics, pedagogy and TESL theory, and teaching methodology.

Master of Fine Arts. The M.F.A. is the terminal degree for those wishing to teach creative writing at the college or university level; it is also among the credentials expected of those seeking employment in arts administration, editing, and related fields. The curriculum provides theoretical and practical training in fiction, poetry, creative nonfiction, and editing and publishing.

Of the minimum 48 credits required for the degree, at least 15 are to be taken in graduate-level literature, language, or composition courses; 15 in graduate-level creative writing courses; 4 in workshops taught by Distinguished Visiting Writers; 3 in courses from other fine arts disciplines (for example, theatre arts, music, art, and architecture); 5 elective credits; and 6 in thesis. A minimum of four semesters in residence is required.

The thesis will take the form of a collection of poetry, short stories, creative nonfiction, or novel, and will be prefaced by an introduction. Upon completion of the thesis in acceptable form, each student will take an oral examination designed to test the student's ability to discuss articulately his or her creative process, intellectual and creative influences, chosen genre, aesthetic perspective, design, and intent.

Students who enter the program with advanced work in creative writing at the undergraduate level will ordinarily take only 500-level courses in English. Those who have not completed an advanced undergraduate course in one of the three major genres (fiction, poetry, creative nonfiction) will in addition to the above ordinarily take advanced undergraduate courses, as advised by the director of creative writing.

Program in Environmental Engineering

Margrit von Braun, Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail enve@uidaho.edu; http://www.uidaho.edu/enve).

Department of Biological and Agricultural Engineering, James A. DeShazer, Head (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; email baengr@uidaho.edu). *Faculty:* Jan Boll, Thomas F. Hess.

Department of Chemical Engineering, Wudneh Admassu, Chair (312 Buchanan Engineering Lab. 83844-1021; phone 208/885-6793; email jrattey@uidaho.edu). *Faculty:* Thomas E. Carleson, David C. Drown, H. Bradley Eldredge, Roger A. Korus, Margrit von Braun.

Department of Civil Engineering, James H. Milligan, Chair (104 Buchanan Engineering Lab. 83844-1022; phone 208/885-6782; email loisp@uidaho.edu). *Faculty:* Howard S. Peavy, P. Steven Porter, Alfred T. Wallace.

Environmental engineering is a specialty of engineering focused on identifying and designing solutions for environmental problems. Major areas include air pollution control, water and wastewater treatment, hazardous waste management, and pollution prevention. Environmental engineers have the technical and scientific knowledge to identify, monitor, design, build, and operate systems that protect the environment from damage and correct existing problems. Environmental engineers typically work in consulting firms, industries, state and federal agencies, universities, or waste treatment companies.

Graduate environmental engineering education builds on traditional engineering components, typically found in departments of biological and agricultural, civil, and chemical engineering. The breadth and multidisciplinary nature of environmental problems requires that environmental engineers possess skills beyond those normally associated with a single engineering field. Knowledge in geology, hydrology, soil science, computers, microbiology and water, atmospheric chemistry, and other disciplines provides breadth to enhance technical skills. Good communication skills are also essential.

The College of Engineering offers M.S. (thesis) and M.Engr. (nonthesis) environmental engineering (EnvE) degrees at the Moscow and Idaho Falls campuses. The M.Engr. program is also offered through Engineering Outreach at some locations. The interdisciplinary program combines the resources of three departments—Biological and Agricultural Engineering, Chemical Engineering, and Civil Engineering—to provide a solid design-based environmental engineering curriculum. Environmental engineering research is actively supported both externally and by several interdisciplinary centers on campus including the Water Resources Research Institute, the Center for Hazardous Waste Remediation Research, the Institute for Molecular and Agricultural Genetic Engineering, and the National Center for Advanced Transportation Technology. The College of Engineering collaborates with environmental engineering faculty from Washington State University, located just eight miles west of Moscow, in research, cooperative courses, and seminars. The Idaho Falls program is coordinated with Idaho State University's master's program in environmental engineering.

Admission to the program is based on: ability to complete graduate-level work evidenced by undergraduate transcripts; the applicant's statement of research and career objectives; the compatibility of the student's objectives with faculty expertise and program objectives; and availability of graduate faculty to act as major adviser for the applicant. The GRE, applicant's statement of objectives, and three letters of recommendation are required. Students without backgrounds in engineering may be admitted after certain undergraduate deficiencies are completed.

Financial assistance, in the form of research and teaching assignments with out-of-state tuition waivers, is available. The normal matriculation period is 18 to 21 months. A broad range of opportunities for research includes water quality engineering, hazardous waste management, water and wastewater treatment, bioremediation, ground and surface water resources, air pollution control, and energy conservation.

Courses

See part 6 for courses in Environmental Engineering (EnvE).

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. General M.S. requirements apply in addition to courses listed below. A minimum of 30 credits is required, including 6 credits of thesis research.

Master of Engineering. General M.Engr. requirements apply in addition to courses listed below. A minimum of 33 credits is required for graduation, including 3 credits of research that is not directly related to a thesis.

A common set of core courses is required in both programs as follows:

BSyE 532 Bioreactor Theory and Design for Waste Treatment or
CE ID&WS534 Environmental Engineering Unit Processes (3 cr)
Chem 418 Environmental Chemistry (3 cr)
CE ID&WS531 Environmental Engineering Unit Operations (3 cr)
ChE 570 Hazardous Waste Management (3 cr)
ChE ID&WS575 Air Pollution Control (3 cr)
EnvE 500 Master's Research and Thesis (6 cr) or EnvE 599 Research (3 cr).

In addition to the core, the student will select supporting courses based on career objectives to add depth to his or her curriculum. A minimum of 9 to 15 credits (for the thesis or nonthesis option, respectively) must be selected by the student with the concurrence of his or her adviser and committee. The following is a partial list of typical supporting courses:

AgE 551 Advanced Hydrology
AgE 558 Fluid Mechanics of Porous Materials
BSyE 533 Bioremediation
BSyE ID&WS452 Environmental Water Quality
CE 533 Water Quality Management
CE WS435 Hazardous Waste Engineering
CE 522 Hydraulic Design
CE ID&WS532 Design of Water and Wastewater Systems II
ChE 560 Biochemical Engineering
ChE R578 Treatment of Hazardous Chemical Waste
ChE R579 Hazardous Waste Site Remediation Design
ChE 580 Engineering Risk Assessment for Hazardous Waste Evaluations
Geol 309 Groundwater
Hydr 563 Hydrogeology

Fundamental knowledge contained in some lower-division courses is essential to the program. Students who have not taken these, or similar, courses will be required to remove these deficiencies. Some of these deficiency courses must be completed before admission; others may be incorporated into the student's required program. Minimum prerequisite courses include:

CE 321 Hydrology
CE 330 Fundamentals of Environmental Engineering
ChE 223 Material and Energy Balances
Chem 112 Principles of Chemistry II
Engr 320 Engineering Thermodynamics and Heat Transfer
Engr 335 Engineering Fluid Mechanics
Engr 360 Engineering Economy or ChE 453 Chemical Process Analysis and Design
Math 310 Ordinary Differential Equations
Stat 301 Probability and Statistics

An EnvE faculty committee evaluates deficiencies and makes recommendations for students entering the program without an undergraduate degree in engineering.

Program in Environmental Science

Margrit von Braun, Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail envs@ uidaho.edu; http://www.its.uidaho.edu/EnvSc).

Biological Science Option Faculty: **Steven N. Austad, David H. Bennett, Jan Boll, Steven J. Brunsfeld, Alton G. Campbell, Allan B. Caplan, Donald L. Crawford, Ronald L. Crawford, Maxine E. Dakins, Brian C. Dennis, Sanford D. Eigenbrode, C. Michael Falter, Edward O. Garton, Thomas F. Hess, Karen L. Launchbaugh, L. Kirk Lohman, Robert L. Mahler, John D. Marshall, Joseph P. McCaffrey, Penelope Morgan, Matthew J. Morra, Kerry P. Reese, Ronald Robberecht, Dennis L. Scarnecchia, J. Michael Scott, Molly W. Stock, R. Gerald Wright, Robert S. Zemetra.**

Physical Science Option Faculty: **Thomas E. Carleson, Valerie E. Chamberlain, I. Francis Cheng, H. Bradley Eldredge, T. Rick Fletcher, Dennis J. Geist, Mickey E. Gunter, John E. Hammel, Gary S. Johnson, Paul A. McDaniel, Jeanne L. McHale, Leland L. Mink, Gregory Moller, James L. Osiensky, Howard S. Peavy, P. Steven Porter, Keith A. Prisbrey, Margrit von Braun, Ray von Wandruszka, Chien M. Wai, Barbara Cooke Williams, Scott A. Wood.**

Social Science Option Faculty: **Katherine G. Aiken, Stephen C. Cooke, Donald W. Crowley, Stephen R. Drown, E. Philip Druker, Jo Ellen Force, Katherine Paxton George, Dale D. Goble, Bruce T. Haglund, Joel R. Hamilton, Charles C. Harris, Steven J. Hollenhorst, Harley E. Johansen, Douglas Lind, Gary E. Machlis, Jon R. Miller, Michael R. L. Odell, Gundars Rudzitis, Nick Sanyal, Arthur D. Smith, Jr., William R. Swagerty, Roger P. Wallins, Jerry L. Wegman, Patrick R. Wilson.**

The Environmental Science Program offers B.S. and M.S. degrees that emphasize the importance of an interdisciplinary approach for students committed to studying and solving environmental issues. The multi-disciplinary faculty represents all colleges at the university and includes soil scientists, engineers, geographers, biologists, ecologists, political scientists, sociologists, chemists, and hydrologists.

Career opportunities in the environmental sciences are diverse and numerous. Graduates are employed in the private and public sectors in areas such as natural resource management, pollution prevention, air and water quality monitoring, hazardous waste management, environmental and land use planning, and environmental regulation and compliance.

The curriculum leading to the B.S. degree in environmental science offers students the opportunity to combine studies in several disciplines and professional fields in order to gain an understanding of the complex nature of environmental problems. In addition to understanding relationships among traditional disciplines, the program creates an integrated and coherent approach to environmental problem solving.

The curriculum includes the university core (general education) requirements, a common set of required courses and electives for all environmental science majors, and the student's choice of one of three options. The required courses and electives for all majors are designed to build a strong base of knowledge in biological, physical, and social sciences, supplemented by a set of electives, in consultation with an environmental science adviser, from four areas (ecology, natural resource economics, sociology, and management). All students complete a senior project as part of their course of study.

Three option areas are offered: biological science, physical science, and social science.

Graduate training in the Environmental Science Program provides students with the opportunity to specialize in one of six primary areas: ecology/biological science, waste management, earth science/hydrology, natural resource management, physical science, and policy and law.

Admission to the graduate program is based on: ability to complete graduate-level work evidenced by undergraduate transcripts; the applicant's statement of research and career objectives; the compatibility of the student's objectives with faculty expertise and program objectives; and availability of graduate faculty to act as major adviser for the applicant. The GRE, applicant's statement of objectives, and three letters of recommendation are required. Students without backgrounds in environmental science may be admitted after certain undergraduate deficiencies are completed.

Questions regarding either the B.S.Env.S. or M.S. programs should be directed to the program coordinator (208/885-6113).

Courses

See part 6 for courses in Environmental Science (EnvS).

Undergraduate Curricular Requirements

ENVIRONMENTAL SCIENCE (B.S.Env.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

EnvS 101 Introduction to Environmental Science 3
EnvS 102 Field Activities in Environmental Sciences 1
EnvS 200 Sophomore Seminar 2
EnvS 400 Seminar 1
EnvS 497 Practicum in Environmental Science 3
Biol 201 Introduction to the Life Sciences 4
Chem 111 Principles of Chemistry I (students in social science option may substitute Chem 101) 4
Comm 101 Fundamentals of Public Speaking or 3-4 cr in foreign language courses 2-4
Engl 317 Technical & Engr Report Writing 3
Phil 452 Environmental Philosophy 3
Stat 251 Principles of Statistics 3
Adviser-directed breadth electives, including at least one course from the first four areas 24

Ecology
- Biol 331 General Ecology
- Bot 432 Plant Ecology
- For/Rnge/WLF 221 Natural Resources Ecology
- MMBB 425 Microbial Ecology
- WLF 290 Fish & Wildlife Ecology, Management, & Conservation

Natural Resource Economics and Sociology
- AgEc 467 Economics of Rural Community Development
- Econ 385 Environmental Economics
- For 235 Society & Natural Resources
- For 383 Economics for Natural Resource Managers
- RRT 383 Amenity Resource Econ for Environmental Policymaking

Management
- ChE 470 or EnvS WS445 Hazardous Waste Management
- Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
- For 484 Forest Policy & Administration
- Geog 420 Land & Resource Regulation
- Geog 427 Decision-Making in Resource Management
- Geog WS444 Environmental Assessment
- RRT 486 Public Involvement in Natural Resource Mgt
- WLF 493 Environmental Law

History, Philosophy, and Political Science
- Hist 424 American Environmental History
- Phil 250 Introduction to Philosophy of Science
- Phil 350 Philosophy of Biology
- PolS 461 Western Environmental Legal History
- PolS 464 Politics of the Environment
- RRT 489 Personalities & Philosophies in Conservation

Technical
- Biol 202 General Zoology or 203 General Botany
- Biol R531 Environmental Science & Pollutants
- Chem 253 Quantitative Analysis
- Chem 275 Carbon Compounds or Chem 277 and 372 Organic Chemistry
- Chem 302 Principles of Physical Chem or 305-306 Physical Chem
- Chem 303 Principles of Physical Chem Lab
- Chem J318/J418 Environmental Chemistry
- EnvS WS210 Microcomputer Models of Environmental Systems
- EnvS R471 Waste Treatment Technologies
- EnvS R479 Introduction to Environmental Regulation
- EnvS 498 Internship (1-3 cr)
- For 472 Remote Sensing of Environment
- Geog 301 Meteorology or 401 Climatology
- Geog 385 GIS Primer
- Geol 309 Groundwater
- Geol 361 Geology & the Environment
- Math 175 Analytic Geometry & Calculus II
- Math 275 Analytic Geometry & Calculus III
- MMBB 380 Introductory Biochemistry
- Phys 111 General Physics I or 211 Engr Physics I
- Phys 112 General Physics II or 212 Engr Physics II
- Soil 205 General Soils

And one the following options:

A. BIOLOGICAL SCIENCE OPTION

This option is suitable for students wishing to pursue technically oriented careers in environmental professions such as natural resource management, bioremediation, and environmental impact analysis.

Chem 112 Prin of Chem II or Chem 113 Inorganic Chem & Qual Analysis 4-5
Geog 100 Physical Geography or Geol 101 Physical Geology 4
Math 170 Analytic Geometry & Calculus I or 160 Survey of Calculus 4
MMBB 250 General Microbiology 5

Adviser-approved depth electives—include all the courses from at least two of the following areas 20
- Plant Ecology
  - Bot 432 Plant Ecology
  - For/Rnge/WLF 221 Natural Resources Ecology
  - For 426 Wildland Fire Management & Ecology
- Plant Protection
  - Ent 322 Economic Entomology or 491 Principles of Insect Pest Mgt
  - PlSc 338 Weed Control
  - PlSc 405 Plant Pathology
  - Soil 446 Soil Fertility
- Animal Ecology
  - WLF 314 Wildlife Ecology I
  - WLF 315 Wildlife Ecology I Laboratory
  - WLF 316 Wildlife Ecology II
- Aquatic Ecology
  - Fish 290 Fish & Wildlife Ecology, Management, & Conservation
  - Fish 314 Fish Ecology
  - Fish 415 Limnology
- Forest and Range Systems
  - For 306, 307 Wildland Resource Conservation & Lab
  - For 330 Forest Ecosystem Processes
  - For 465 Forest Protection
  - Rnge 251 Principles of Range Resources Management
- Soils
  - Soil 437 Soil Biology
  - Soil 438 Pesticides in the Environment
  - Soil 446 Soil Fertility
- Water (take at least 4 of the 6 courses)
  - AgE 351 or CE 321 Hydrology
  - EnvS 404 ST:Water Science
  - For 462 Watershed Management
  - Geol 410 Techniques of Groundwater Study
  - Geol 309 Groundwater
  - Geol 478 Low Temperature Aqueous Geochemistry
- Environmental Regulation
  - Geog 420 Land & Resource Regulation
  - Geog WS444 Environmental Assessment or Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
- Decision Making Tools
  - For 472 Remote Sensing of Environment
  - Geog 385 GIS Primer
  - LArc 490 Computer-Aided Regional Landscape Planning
- Environmental Chemistry
  - Biol R531 Environmental Science & Pollutants
  - Chem 318 Environmental Chemistry
  - Ent 438 Pesticides in the Environment

Electives to total 128 credits for the degree ..... —

B. PHYSICAL SCIENCE OPTION

This option is suitable for students wishing to pursue technical careers in environmental professions such as air, soil, and water pollution abatement, hazardous waste management, waste minimization, and ecological restoration.

Chem 112 Principles of Chem II or Chem 113 Inorganic Chem & Qual Analysis 4-5
Geog 100 Physical Geography 4
Geol 101 Physical Geology 4
Math 170 Analytic Geometry & Calculus I or 160 Survey of Calculus 4
Adviser-approved depth electives—meet requirements of at least two of the following areas 20
- Water (take at least 4 of the 6 courses)
  - AgE 351 or CE 321 Hydrology
  - EnvS 404 ST:Water Science
  - For 462 Watershed Management
  - Geol 410 Techniques of Groundwater Study
  - Geol 309 Groundwater
  - Geol 478 Low Temperature Aqueous Geochemistry
- Chemistry
  - Chem 454 Instrumental Analysis
  - Chem J318/J418 Environmental Chemistry
  - MMBB 380 Introductory Biochemistry
- Hazardous Waste
  - ChE 470 or EnvS WS445 Hazardous Waste Management or BSyE 433 Bioremediation or Met 406 Treatment Technology for Recycled Waste or EnvS R472 Remediation Technologies & Project Implementation
  - ChE 480 Engineering Risk Assessment for Hazardous Waste Evaluations
- Geology (take at least 4 of the 5 courses)
  - Geol 335 Geomorphology
  - Geol 360 Geologic Hazards
  - Geol 423 Principles of Geochemistry
  - Geol 478 Low Temperature Aqueous Geochemistry
  - Geop 422 Principles of General Geophysics
- Statistics
  - GeoE 428 Geostatistics
  - Stat 401 Statistical Analysis
  - Stat 422 Sampling Methods
- Mathematics
  - Math 175 Analytic Geometry & Calculus II
  - Math 275 Analytic Geometry & Calculus III
  - Math 310 Ordinary Differential Equations
  - Math 330 Linear Algebra
- Soils (take at least 3 of the 4 courses)
  - Soil 415 Soil Physics
  - Soil 419 Solute Transport in Porous Media
  - Soil 422 Chemistry of Soil Environment
  - Soil 454 Soil Development & Classification
- Economics and Management
  - Econ 385 Environmental Economics
  - For 472 Remote Sensing of Environment
  - Geog/LArc 385 GIS Primer
  - Geog WS444 Environmental Assessment or Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning

Electives to total 128 credits for the degree ..... —

C. SOCIAL SCIENCE OPTION

This option is suitable for students wishing to pursue careers in environmental professions such as environmental regulation, land use planning, environmental administration, and as a pre-law program for environmental law.

Geog 100 Physical Geography 4
Geol 101 Physical Geology 4
Math 137 Algebra with Applications or 143 Pre-calculus Algebra & Analytic Geometry 3
Adviser-approved depth electives chosen from the following 20
- Business and Economics
  - AgEc 451 Land & Natural Resource Economics
  - Bus 314 World of Corporate Business
  - Econ 316 Economics of Regulation
  - Econ 385 Environmental Economics
  - For 383 Economics for Natural Resource Managers
  - RRT 383 Amenity Resource Econ for Environmental Policymaking
- Conflict Resolution/Communication
  - Comm 331 Conflict Management
  - Comm 332 Communication & the Small Group
  - RRT 394 Natural Resources Communication
  - RRT 486 Public Involvement in Natural Resource Mgt
- History
  - Hist 423 Idaho & the Pacific Northwest
  - Hist 424 American Environmental History
  - Hist 428 History of the American West
- Law
  - Phil 434 Philosophy of Law
  - PolS 452 Administrative Law & Regulation
  - PolS 461 Western Environmental Legal History
  - WLF 493 Environmental Law
- Literature
  - Engl 472 Emerson, Thoreau, & Whitman
  - Engl 473 Literature of the American West
  - RRT 489 Personalities & Philosophies in Conservation
- Planning and Policy
  - Fish/For/ForP/Rnge/RRT/WLF 470 Interdisciplinary Natural Resource Planning
  - For 484 Forest Policy & Administration
  - Geog 360 Population Dynamics & Distribution
  - Geog 420 Land & Resource Regulation
  - Geog 427 Decision-Making in Resource Management
  - Geog WS444 Environmental Assessment
  - LArc 480 Issues for the Emerging Landscape
  - PolS 439 Public Policy
  - PolS 464 Politics of the Environment
- Science Writing
  - Comm 422 Science Communication
  - Comm 425 Feature Article Writing
  - Engl 309 Advanced Prose Writing

Electives to total 128 credits for the degree ..... —

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Program in Environmental Science. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. Each student will design a study plan in consultation with an adviser and a thesis committee. The study plan is subject to approval by the director and the Graduate College.

The basic requirements for the M.S. degree in environmental science include (1) at least two courses (6 credits) selected from the following supporting areas: biological, physical, social, or engineering sciences, mathematics, statistics; (2) one course (2-4 credits) in appropriate research methods, statistics, or directed study at the 500 level; (3) 12-15 credits in option area courses (possible option areas include ecology/biological science, waste management, earth science/hydrology, natural resource management, physical science, and policy and law); (4) EnvS 501, environmental science seminar, 2 credits; (5) option area graduate seminar, 1 credit; and (6) EnvS 500 or 599, 6 or 3 credits, respectively. These requirements may be augmented to compensate for undergraduate deficiencies.

The thesis degree consists of at least 30 graduate credits, including at least 6 credits and a maximum of 10 credits of thesis and a minimum of 24 credits of course work. For the thesis option, at least 21 credits in the option and supporting area must be at the 500 level, including a minimum of 6 hours of research and thesis (EnvS 500). The nonthesis degree program requires at least 30 graduate credits, including a minimum of 3 credits of EnvS 599 (Nonthesis Research) and 27 credits of course work. For the nonthesis option, at least 21 credits in the option and supporting area must be at the 500 level, including 3 hours of nonthesis research (EnvS 599). For both thesis and nonthesis options, a student can take up to 9 credits at the 400 level in the option and supporting area (one class can be at the 300 level in a supporting area with committee approval). The thesis or nonthesis research part of the program for each student consists of a substantial project in which the student demonstrates ability to do rigorous independent work.

Concurrent J.D./M.S. Environmental Science Degrees. The concurrent J.D./M.S. degree program offers students an opportunity to combine the study of scientific, social, philosophical, and legal aspects of environmental issues. This program equips students for jobs in which the technical knowledge offered through the Environmental Science Program and the professional expertise provided by the College of Law would be beneficial.

Students must apply separately to and be admitted by the College of Graduate Studies/ Environmental Science Program, the College of Law, and the Concurrent J.D./M.S. Degree Program. Admission into the concurrent degree program is dependent on a demonstrated ability to excel in an intense, interdisciplinary educational environment.

Students must complete the requirements set out above for an M.S. degree in environmental science and the requirements for a J.D. (see the College of Law section), subject to the following conditions. The first year of study will be exclusively in the College of Law. Because the concurrent degree program requires an M.S. thesis, the fourth year of the program will be primarily in the Environmental Science Program. Up to 12 hours of M.S. graduate credit will be allowed toward the J.D. degree and up to 6 hours of law credit will be allowed toward the M.S. degree from preapproved lists of classes. This will permit a student to complete the concurrent degree program in as little as four years. If a student fails to complete the master's degree program, no more than 6 credits will be allowed toward the J.D. degree; if a student fails to complete the law program, the student will be required to satisfy all requirements of the Environmental Science Program before receiving the M.S. degree.

Questions regarding the concurrent degree program should be addressed to the Environmental Science Program coordinator (208/885-6113) or to the College of Law (208/ 885-6423).

Margaret Ritchie School of Family and Consumer Sciences

Linda Kirk Fox, Director (105 Mary Hall Niccolls Family and Consumer Sciences Bldg. 83844-3183; phone 208/885-6545; e-mail famcon@uidaho.edu). *Faculty:* Laurel J. Branen, Sandra Evenson, Janice W. Fletcher, Linda Kirk Fox, Kathe A. Gabel, Antone J. Gatherum, Madeline Dellwo Houghton, Virginia W. Junk, Sandra M. McCurdy, Martha A. Raidl, Cynthia J. Schmiege, Harriet L. Shaklee, David J. Trayte, Nancy J. Wanamaker. *Adjunct Faculty:* A. Larry Branen, Arlinda K. Nauman, Randy M. Page.

Family and consumer sciences focuses on the relationships, resources, and services contributing to individual and family well being. The discipline analyzes the needs of individuals and families using social, psychological, physical, biological, economic, and aesthetic theories and concepts.

Three majors leading to the degree of Bachelor of Science in Family and Consumer Sciences (B.S.F.C.S.) are offered by the School of Family and Consumer Sciences and are designed to meet professional and individual goals of students. These are: (1) child, family, and consumer studies, (2) food and nutrition, and (3) clothing, textiles and design.

Students may choose one of three program options in the child, family, and consumer studies major. Child development/family relations focuses on the normal, healthy development of children and families. Consumer affairs emphasizes "the consumers' interests" when studying economics, business, and communication practices in our society. Family and consumer sciences education prepares students for teaching in the public schools, in community settings, or business audiences. Graduates of the major include day care managers, child life specialists, consumer affairs advocates, extension educators, and teachers.

The food and nutrition major offers the dietetics and nutrition options. The Coordinated Program in Dietetics includes a senior year experience in Spokane where students complete a supervised practicum in community and medical center settings. This program is accredited by the American Dietetic Association and allows students to take the exam to become registered dietitians. The nutrition option prepares students for careers with government agencies, commodity groups, health and fitness agencies and businesses, and some components of the food industry. In addition, the course work would provide excellent background for those wishing to pursue advanced degrees in medicine or nutrition. The first two years of courses are very similar in these two options. Students apply for acceptance into the Coordinated Program in Dietetics at the end of the sophomore year.

The clothing, textiles, and design major offers both apparel design and fashion merchandising emphases. Combining courses from art or business with the clothing, textile, and design courses offered in the school prepares students for careers in retail and wholesale sectors of the apparel and textile industries. Designers, product development specialists, retail buyers and managers, and merchandise managers are some of the career titles held by UI graduates.

The Margaret Ritchie School of Family and Consumer Sciences offers graduate course work and research opportunities concerning individuals and families across their life spans. An integrated approach prepares students for the complexities of our global society through the analysis and application of relevant theories, practices, and research. Issues important to individuals and families, such as human development, consumption, resource management, education, aesthetics, and public policy, are studied in the context of cultural and physical environments.

Graduate students apply communication, analytical, evaluation, and synthesis skills to the study of families and consumers through classroom, practica, and research experiences. The school's Child Development Laboratory provides a special resource for both teaching and research activities. Internships in community agencies and business, practica in teaching and supervision, and graduate teaching and research assistantships also provide valuable graduate student experiences. Graduate student research is closely aligned with faculty interests that currently include work and family, quality child care, feeding young children, at-risk youth, financial management through the life span, sports nutrition, family life education, international textile trade patterns, and cultural aspects of dress. The program prepares students to be teachers in the public schools and community colleges; child or human development specialists in public and private organizations such as nonprofit and social services agencies, hospitals, child care centers, and the extension system; and for the future pursuit of the Ph.D. degree in family and consumer sciences, social work, education, or related fields.

The Margaret Ritchie School of Family and Consumer Sciences has an outstanding scholarship program for entering first-year students, continuing undergraduate majors, and graduate students. Most scholarships are awarded on the basis of academic excellence regardless of financial need.

Courses

See part 6 for courses in Family and Consumer Sciences (FCS).

Undergraduate Curricular Requirements

CHILD, FAMILY, AND CONSUMER STUDIES (B.S.F.C.S.) (or B.A., Child Development/Family Relations option only)

This major has an interdisciplinary focus on the child, the family as an institution, and families as consumers.

The minimum credits required for graduation are 132, including at least 36 credits at the 300-level or above. Required course work includes the university requirements (see regulation J-3) and:

FCS 105 Individual & Family Development 3
FCS 346 Personal & Family Finance & Management 4
FCS 440 Contemporary Family Relationships 3
FCS 451 Professional Development 3

And one of the following options:

A. CHILD DEVELOPMENT/FAMILY RELATIONS OPTION

The CDFR option allows students to develop individualized programs to meet personal and career goals. Some suggested career emphasis areas are: (1) human services, (2) education (double major leading to Idaho elementary teaching certification is possible—consult an adviser in the College of Education), and (3) child life. Students are encouraged to complete an internship.

FCS 205 Concepts in Human Nutrition 3
FCS 234 Infancy & Early Childhood 3
FCS 235 Principles & Methods of Child Observation 3
FCS 240 Intimate Relationships 3
FCS 333 Developmental Curriculum for Young Children 3
FCS 334 Middle Childhood-Adolescence 3
FCS 340 Parent-Child Relationships in Family & Community 3
FCS 436 Theories of Child & Family Development 3
FCS 497 Practicum 9
Comm 101 Fundamentals of Public Speaking 2
ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
H&S 288 First Aid: Emergency Response 2
Stat 150 Intro to Statistics or 251 Principles of Statistics 3
Computer applications elective 3

B. CONSUMER AFFAIRS OPTION

The consumer affairs option prepares students to advocate for the consumer and to help consumers improve their well-being. Consumer affairs professionals present the consumer's viewpoint to their employing organization and convey information about the organization's products and services to the consumer. Career options include jobs in business firms, government agencies, and nonprofit organizations.

FCS 445 Issues in Work & Family Life 3
FCS 448 Consumer Economic Issues 3
FCS 460 Family as an Ecosystem 3
FCS 498 Internship 3-8
AgEc 356 Agricultural Programs & Policies or Econ 316 Econ of Regulation 3
ASM 240 Computer Applications in Biological Systems 3
Bus 311 Introduction to Management 3
Bus 321 Marketing 3
Bus 324 Buyer Behavior 3
Bus 413 Organizational Behavior 3
BuEd 415 Microcomputer Applications 3
Comm 101 Fundamentals of Public Speaking 2
Comm 121 Media Writing 3
Comm 252 Principles of Public Relations 3
Comm 265 Advertising & Society 3
Comm 431 Professional Presentation Techniques 3
Econ 201, 202 Principles of Economics 6
Stat 150 Intro to Statistics or 251 Prin of Statistics 3
FCS consumer elective 3
Additional family and consumer sciences courses to total at least 45 cr ..... —

C. FAMILY AND CONSUMER SCIENCES EDUCATION OPTION

Family and Consumer Sciences Education prepares students for teaching in the public schools, in community settings, or business audiences.

Students seeking certification as secondary teachers must meet College of Education requirements for entry into teacher education. These requirements are prerequisite to enrollment in upper-division courses in the College of Education (see "Admission to the Teacher Education Program"). Completion of this option will qualify students for the Idaho standard secondary teaching certification with a vocational home economics endorsement. With minimal additional course work, students can qualify for other teaching endorsements.

Two of the following courses 6
- FCS 123 Textiles (3)
- FCS 129 Dress & Culture (3 cr)
- FCS 223 Evaluation of Apparel and Textiles (3 cr)
- FCS 224 Apparel Design I (3 cr)

FCS 170 Introductory Foods 3
FCS 205 Concepts in Human Nutrition 3
FCS 234 Infancy & Early Childhood 3
FCS 270 Intermediate Foods 3
FCS 428 Housing America's Families 3
FCS 448 Consumer Economic Issues 3
FCS 450 Curriculum Development in Family & Consumer Sciences Ed 3
FCS 471 Student Teaching in Family & Consumer Sciences Ed 10
ACTE 444 Diverse Populations & Individual Differences 2
ACTE 445 Proseminar in Professional-Technical Education 2
ACTE 460 Using Internet-Based Career Information in the Classroom 2
Art 100 Visual Art 3
BuEd 111 Computer Skills or 415 Microcomputer Applications 2-3
Comm 101 Fundamentals of Public Speaking 2

Econ 201 Principles of Economics 3
ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
ED 312 Educational Psychology 2
ED 313 Educational Measurement 1
ED 314 Strategies for Teaching 3
EDTE 463 Literacy Methods for Content Learning 3
PTE 351 Principles & Philosophy of Professional-Technical Ed 3
Psyc 101 Introduction to Psychology 3
Soc 101 Introduction to Sociology 3
Biology elective 4
Chemistry elective 4
Humanities elective 3
Math/statistics/computer science elective 3

CLOTHING, TEXTILES AND DESIGN (B.S.F.C.S.)

This major considers clothing, textiles and design as basic human needs, consumer products, historical and cultural artifacts, and communication tools. Career emphasis areas include retail buying and selling, design, and international marketing.

Required course work includes the university requirements (see regulation J-3) and:

FCS 105 Individual & Family Development 3
FCS 123 Textiles 3
FCS 129 Dress & Culture 3
FCS 205 Concepts in Human Nutrition or 405 Eating Disorders 2-3
FCS 223 Evaluation of Apparel & Textiles 3
FCS 224 Apparel Design I 3
FCS 329 Historic Costume 3
FCS 429 Current Issues in Clothing & Textiles 3
FCS 448 Consumer Economic Issues 3
FCS 496 Internship: Fashion Business 3-9
Art 100 Visual Art 3
Bus 321 Marketing 3
Chem 101 Introduction to Chemistry I 4
Comm 101 Fundamentals of Public Speaking 2
Econ 201 or 202 Principles of Economics 3
Psyc 101 Intro to Psychology or Soc 101 Intro to Sociology 3
Anthropology elective 3
Computer applications elective 2-3
Adviser-approved clothing, textiles, & design electives 9
Humanities electives 3
Humanities or social science electives 3-4
Math/statistics elective 4
Additional FCS credits outside of the CTD curriculum 6
An area of emphasis selected with the guidance of an adviser 18
Electives to total 132 cr for the degree ..... —

FOOD AND NUTRITION (B.S.F.C.S.)

Required course work includes the university requirements (see regulation J-3) and one of the following options.

A. COORDINATED PROGRAM IN DIETETICS

Upon acceptance to the professional phase of the CPD during the second semester of the sophomore year, students must maintain a cumulative grade-point average of at least 2.70 to remain in and graduate from the program. Students must also obtain at least a B (80%) in all CPD courses required for membership in the American Dietetic Association.

FCS 105 Individual & Family Development 3
FCS 170 Introductory Foods 3
FCS 205 Concepts in Human Nutrition 3
FCS 270 Intermediate Foods 3
FCS 305 Nutrition Related to Fitness & Sport 3
FCS 361 Advanced Nutrition 4
FCS 362 Introduction to Clinical Dietetics 4
FCS 363 Diet Therapy 4
FCS 364 Clinical Dietetics I 4
FCS 384 Quantity Food Production & Equipment 5
FCS 387 Food Systems Management 3
FCS 405 Eating Disorders 2
FCS 472 Clinical Dietetics II 6
FCS 473 Community Nutrition 4
FCS 474 Food Research & Development 3
FCS 485 Computer Applications in Food Administration 2
FCS 486 Nutrition in the Life Cycle 4
FCS 487 Management Supervised Practice 2
FCS 488 Food Service Management Practicum 6
Acct 201 Introduction to Financial Accounting 3
Bus 311 Introduction to Management 3
Chem 101 Intro to Chemistry I or 111 Prin of Chemistry I 4
Chem 275, 276 Carbon Compounds & Lab 4
Econ 201 Principles of Economics 3
Engl 317 Technical & Engineering Report Writing 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
MMBB 154, 155 Introductory Biology of Bacteria & Viruses & Lab 4
MMBB 300 Survey of Biochemistry 3
Psyc 101 Introduction to Psychology 3
Soc 101 Introduction to Sociology 3
Stat 251 Principles of Statistics 3
Zool 120 Human Anatomy 4
Zool 121 Human Physiology 4
Humanities electives 6
Electives to total 132 cr for the degree ..... —

B. NUTRITION OPTION

This option prepares students for careers with government agencies, commodity groups, health and fitness agencies and businesses, and some components of the food industry. In addition, the course work would provide excellent background for those wishing to pursue advanced degrees in medicine or nutrition.

FCS 105 Individual & Family Development 3
FCS 170 Introductory Foods 3
FCS 205 Concepts in Human Nutrition 3
FCS 270 Intermediate Foods 3
FCS 305 Nutrition Related to Fitness & Sport 3
FCS 361 Advanced Nutrition 4
FCS 362 Introduction to Clinical Dietetics 4
FCS 405 Eating Disorders 2
Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I 4
Chem 112** Principles of Chemistry II 4
Chem 275, 276* Carbon Compounds & Lab or Chem 277, 278** Organic Chemistry I & Lab 4
Engl 317 Technical & Engineering Report Writing 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
MMBB 154, 155* Introductory Biology of Bacteria & Viruses & Lab or MMBB 250** General Microbiology 4-5
MMBB 300 Survey of Biochemistry 3
Phys 111-112** General Physics I-II 8
Stat 251 Principles of Statistics 3
Zool 120 Human Anatomy 4
Zool 121 Human Physiology 4
Humanities electives 6
Social science electives 9
FCS electives 12
Electives to total 128 cr for the degree ..... —

* Required for the general nutrition option.
** Prerequisite courses for nutrition-related postgraduate education.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the School of Family and Consumer Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. A letter of intent, which includes a statement of goals, objectives, and academic interests, and three letters of recommendation are required for admission. Information may be obtained at the school. (A) Thesis Option: Thirty credits of course work including a 13-credit emphasis area in family and consumer sciences and related areas, two graduate seminars, courses in theory and research methods and analysis, and at least 6 credits of thesis research. (B) Non-thesis Option: Thirty-three credits of course work including a 17-19 credit emphasis area in family and consumer sciences and related areas, two graduate seminars, courses in theory and research methods and analysis, and a master's project.

Department of Fish and Wildlife Resources

George W. LaBar, Dept. Head (105A FWR Bldg. 83844-1136; phone 208/885-6434; fish_wildlife@uidaho.edu).

Fishery Resources Faculty: **David H. Bennett, Ted C. Bjornn, Ernest L. Brannon, Kenneth D. Cain, James L. Congleton, C. Michael Falter, George W. LaBar, L. Kirk Lohman, Christine M. Moffitt, Dennis L. Scarnecchia.**

Wildlife Resources Faculty: **Brian C. Dennis, Edward O. Garton, Dennis L. Murray, John T. Ratti, Kerry P. Reese, J. Michael Scott, Lisette P. Waits, R. Gerald Wright.**

Fish and wildlife resources deals with the application of principles of biology and ecology to the understanding of how fish and wildlife populations interact with each other and with their environment, which includes humans. There are three areas of emphasis within the department: **aquaculture, fisheries, and wildlife**. Persons interested in aquaculture or fisheries can design their major within the B.S. in Fishery Resources and those interested in wildlife, within the B.S. in Wildlife Resources.

Fishery biologists and scientists conduct research or apply management principles to aquatic ecosystems. They may become involved with biological monitoring, environmental impact assessment, maintenance of endangered fish, hatchery operation, commercial fish farming, control and prevention of fish diseases, and management of stream or lake ecosystems.

Wildlife biologists, or managers, attempt to maintain adequate populations of game and nongame wildlife species. This involves studying wildlife and its habitat so that management programs can be biologically based. The job often involves coordinating wildlife management programs with other natural resource activities such as forest management, range management, and land use planning.

Both professions offer opportunities in law enforcement, communications, and public relations. A common saying, and one with a great deal of truth, is that fish or wildlife management is largely people management.

Bachelor of Science degrees are offered in fishery resources, wildlife resources, and natural resources ecology and conservation biology (NRECB). In the fishery resources degree, students may design a program that emphasizes fisheries ecology, aquatic ecology, aquaculture, or fisheries management. In the wildlife resources degree, the program emphasizes the principles of wildlife ecology population dynamics, and management. In the college-wide NRECB degree, students may select a natural resource ecology or conservation biology option. Elective courses in all programs provide an opportunity to gain additional knowledge in a special area of interest or to broaden into other fields. To ensure that the student gains practical experience, one season of approved work experience or internship

before graduation is required. For more information on the NRECB program, see the section on "Forestry, Wildlife and Range Sciences (General)" below.

Fish and wildlife graduates find employment with numerous federal and state agencies, educational institutions, and in the private sector. These include the U.S. Fish and Wildlife Service, the Bureau of Land Management, the U.S. Forest Service, the National Marine Fisheries Service, the Army Corps of Engineers, state fish and game or conservation departments, and private organizations such as power companies, commercial fish growers, and consultants. Recent surveys have shown that baccalaureate graduates of UI obtain employment at a rate considerably above the national average.

The graduate program is offered to meet the needs of students who are interested in either specialized or generalized advanced study. An applicant who has completed an undergraduate program in a field not closely related will be required to complete deficiencies as determined by the candidate's committee. Because specific requirements for each degree are determined by the student's supervisory committee, individual study plans allow for differences in preparation while providing all students with a comparable background by the time the graduate program is completed.

In addition to the admission requirements of the Graduate College, the prospective student should have maintained a cumulative grade-point average of at least 3.00 (on a 4.00 scale) during the undergraduate program. Acceptance of students who do not have this minimum grade-point average or other stated requirements is possible, subject to recommendation by the department head. The decision will be based on an analysis of the applicant's situation. The Graduate Record Examination is required for admission. At least one summer's experience with a natural resource agency is strongly recommended.

The graduate program in **fishery resources** is oriented toward the applied and basic aspects of fishery management, aquatic ecology, and fish health management. The fishery management area includes population analysis, management systems, and environmental stresses; the aquatic ecology area includes limnology, aquatic pollution ecology, and habitat management; and the fish management area includes finfish culture (coldwater and warmwater), fish disease diagnostics and epidemiology, and fish physiology. The Idaho Cooperative Fish and Wildlife Research Unit and the Aquaculture Research Institute provide important opportunities for graduate studies in fishery resources and aquaculture.

Students planning to begin graduate studies in fishery resources should have a broad background in the life sciences with specific emphasis on courses in the fishery sciences. They should also have a background in quantitative data processing and communication, both oral and written.

Admission to the graduate program in **wildlife resources** requires an undergraduate degree with a major in wildlife resources or a closely related field emphasizing the principles of wildlife ecology, population dynamics, and management. Students with differing backgrounds are also admitted if they have substantial preparation in the biological and physical sciences. Candidates must fulfill entrance requirements of the Graduate College and of the Department of Fish and Wildlife Resources.

Graduate work in wildlife resources offers students the opportunity to do research in one of several areas including wildlife behavior, predator ecology, population dynamics, and habitat relationships, as well as big game, nongame, upland game, and waterfowl management. Students are encouraged to select topics that will benefit some portion of the wildlife program at the state or national level. Graduate programs in wildlife resources may be developed in cooperation with the Idaho Cooperative Fish and Wildlife Research Unit, an active participant in the department and the overall research program of the college.

In addition to the requirements listed above, admission is based on the compatibility of the student's research interests with the areas of concentration in the department and the availability of research faculty.

The **research mission** of the department is attainment of new knowledge and the understanding of natural resources, their interrelationships and uses. The objectives of the research program are to attain knowledge of the environment and to develop management alternatives that will assist in the conservation of resources while meeting society's needs. The dissemination of this knowledge through publications, continuing education, and other channels of communication is an essential departmental function.

For additional information, please call the department at (208) 885-6434 or visit the web site at http://www.uidaho.edu/CFWR.

Courses

See part 6 for courses in Fishery Resources (Fish) and Wildlife Resources (WLF).

Undergraduate Curricular Requirements

FISHERY RESOURCES (B.S.Fish.Res.)

Students pursuing a B.S. degree in fishery resources (management or aquaculture emphasis) must have received a grade of C or better in each of the following four indicator courses to register for fish- and wildlife-prefixed upper-division courses and to graduate with a B.S.Fish.Res.: Biol 201 and 202, Stat 251, and WLF/For/Rnge 221.

To graduate, students must achieve a grade of C or better in each fish- and wildlife-prefixed upper-division course listed in the requirements for the B.S. degree in fishery resources.

Required course work includes the university requirements (see regulation J-3) and:

First and Second Years

Fish 102 The Fishery Resources Profession 1
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Chem 101 Introduction to Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Econ 202 Principles of Economics 3
For/Rnge/WLF 221 Natural Resources Ecology 3
For/RRT 235 Society & Natural Resources 3
Geol 101 Physical Geology or Soil 205, 206 General Soils & Lab 4
Math 160 Survey of Calculus 4
Phys 100 Fundamentals of Physics 4
Stat 251 Principles of Statistics 3

Summer Session

Fish/WLF/For/ForP/Rnge/RRT 302 Wildland Field Ecology 2

Third and Fourth Years

Fish 314 Fish Ecology 3
Fish 411 Ichthyology 4
Fish 415 Limnology 4
Fish 418 Fisheries Management 4
Fish 419 Aquaculture & Fish Health 4
Fish/WLF/For/ForP/Rnge/RRT 470 Interdisciplinary Natural Resource Planning 3
Fish 495 Seminar 1
AVS 371 Anatomy & Physiology or Zool 423 Comparative Vertebrate Physiology 4
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
MMBB 250 General Microbiology 5
WLF 448 Fish & Wildlife Population Ecology 4
Restricted electives selected from the following courses 15
- AgEc 391 Agribusiness Management (suggested for students interested in aquaculture) (3 cr)
- AVS 305 Animal Nutrition (4 cr)
- Biol 442 Biological Evolution (3 cr)
- Bus 321 Marketing (suggested for students interested in aquaculture) (3 cr)
- Ent 472 Aquatic Entomology (3 cr)
- Fish/Rnge 430 Riparian Ecology & Management (2 cr)
- For 462 Watershed Management (2 cr)
- Gene 314/Biol 351 General Genetics (3 cr)
- MMBB 300 Survey of Biochemistry (3 cr)
- WLF 314 Wildlife Ecology I (3 cr)
- WLF 315 Wildlife Ecology I Laboratory (1 cr)
- WLF 316 Wildlife Ecology II (4 cr)
- WLF 440 Conservation Biology (3 cr)
- WLF/Rnge 493 Environmental Law (2 cr)
- Zool 484 Invertebrate Zoology (4 cr)

Electives to total 128 credits for the degree ..... —

NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Forestry, Wildlife and Range Sciences (General)" below.

WILDLIFE RESOURCES (B.S.Wildl.Res.)

Students pursuing a B.S. in wildlife resources must have received a grade of C or better in each of the following four indicator courses to register in fish- and wildlife-prefixed upper-division courses and to graduate with a B.S. in wildlife resources: Biol 202 and 203, Stat 251, and WLF 221.

To graduate, a student must receive a grade of C or better in each fish- and wildlife-prefixed upper-division course listed in the requirements for the B.S. in wildlife resources.

Required course work includes the university requirements (see regulation J-3) and:

First and Second Years

WLF 102 The Wildlife Profession 1
WLF/For/Rnge 221 Natural Resources Ecology 3
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Bot 241 Systematic Botany or For 320 Dendrology or Rnge 353 Rangeland Plant Identification & Ecology 3
Chem 101 Introduction to Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Econ 202 Principles of Economics 3
For/RRT 235 Society & Natural Resources 3
Geol 101 Physical Geol or Soil 205, 206 General Soils & Lab 4
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
Stat 251 Principles of Statistics 3

Summer Session

Fish/WLF/For/ForP/Rnge/RRT 302 Wildland Field Ecology 2

Third and Fourth Years

WLF 314, 315 Wildlife Ecology I & Lab 4
WLF 316 Wildlife Ecology II 4
WLF 440 Conservation Biology 3
WLF 448 Fish & Wildlife Population Ecology 4
WLF/For 470 Interdisciplinary Natural Resource Planning 3
WLF 492 Wildlife Management 4
WLF 495 Wildlife Seminar 1
ASM 240 Computer Applications in Biological Systems 3
AVS 371 Anatomy & Physiology 4
Engl 208 Personal & Exploratory Writing or 317 Tech & Engr Report Writing or Comm 431 Professional Presentation Techniques 3
For 383 Economics for Natural Resource Managers 3
Gene 314/Biol 351 General Genetics 3
Phys 100 Fundamentals of Physics 4
Restricted electives chosen from the following courses 6
- Zool 481 Ichthyology
- Zool 482 Natural History of Birds
- Zool 483 Natural History of Mammals
- Zool 484 Invertebrate Zoology

Electives to total 128 credits for the degree ..... —

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Fish and Wildlife Resources. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science—Majors in Fishery Resources or Wildlife Resources. The M.S. degree with major study in either fishery resources or wildlife resources is awarded when a student has met the requirements listed below. A formal graduate program of at least 30 semester hours is chosen in consultation with the major professor and the student's supervisory committee. At least 18 credits must be courses numbered 500 and above. For the thesis option, no more than 10 of the 500-level credits of Research and Thesis may be applied toward the degree. (A) Thesis option: General M.S. requirements apply except that the thesis requirement may be fulfilled by one or more journal publications at the discretion of the candidate's supervisory committee. (B) Nonthesis option: General M.S. requirements apply. A professional paper is required.

Doctor of Philosophy. The Ph.D. degree is available with a major in forestry, wildlife and range sciences. General Ph.D. requirements apply; see the section on "Forestry, Wildlife and Range Sciences (General" in part 5 for details.

Department of Food Science and Toxicology

Jerry H. Exon, Dept. Head (22 Glen C. Holm Bldg. 83844-2201; phone 208/885-7081 or toll-free 888/900-3783; e-mail fstasl@uidaho.edu). *Faculty:* A. Larry Branen, Jerry H. Exon, Kerry C. Huber, Gregory Moller, Patricia A. Talcott, John H. Thorngate III. *Adjunct Faculty:* Laurel J. Branen, Kathe A. Gabel. *Affiliate Faculty:* John Baranowski, Miles Willard.

Food science is the study of the science and technology related to the safety, quality, procurement, processing, preservation, and distribution of foods and food products.

Toxicology is the scientific study related to poisonous substances, their biologic effects, detection, and physical properties, and the recognition and treatment of diseases caused by such substances. These substances may be naturally occurring or manufactured.

The Department of Food Science and Toxicology offers the B.S.F.S. and M.S. degrees in food science. Through a combination of specific program requirements, course offerings, and student advising, the Department of Food Science and Toxicology prepares students for careers in private industry, government, and academia. Departmental research programs include investigation of food additives and chemicals that protect food from deterioration and spoilage; development of new food and non-food products from raw agriculture commodities; testing of natural chemicals for beneficial health effects; examination and manipulation of food chemicals to improve product quality; investigating the sensory qualities of foods and beverages for consumer acceptance; studying toxic effects of chemicals that affect human health and the environment; and detection and study of microorganisms that are foodborne pathogens.

Students take classes on both the UI and Washington State University campuses. Faculty in food science from both universities teach graduate and undergraduate courses in the program. This allows students access to facilities and faculty expertise from both institutions.

Admission to the graduate program requires: (1) a minimum GPA of 2.80, with possible exceptions evaluated by the Graduate Admissions Committee on a case by case basis; (2) GRE scores (no specified minimum score); (3) a minimum TOEFL score of 525; (4) a letter outlining research interests and career goals of the applicant; and (5) three letters of recommendation, with at least two from individuals in academia.

Courses

See part 6 for courses in Food Science and Toxicology (FST).

Undergraduate Curricular Requirements

FOOD SCIENCE (B.S.F.S.)

Emphasis in this program is placed on providing a sound background to prepare students for positions in food processing and related industries, governmental agencies, and research laboratories, and to prepare students who wish to pursue an advanced degree in food science. Faculty from both UI and Washington State University teach courses in the food science program. Some classes are taught on the UI campus and some on the WSU campus.

Required course work includes the university requirements (see regulation J-3) and:

First and Second Years

FST 101 Introduction to Food Science	3
FST 210 The Science of Viticulture & Enology	2
ASM 240 Computer Applications in Biological Systems	3
Biol 100 Introduction to Biology	4
Chem 111 Principles of Chemistry I	4
Chem 113 Inorganic Chemistry & Qualitative Analysis	5
Chem 275, 276 Carbon Compounds & Lab	4
Comm 101 Fundamentals of Public Speaking	2
Econ 202 Principles of Economics	3
FCS 170 Introductory Foods	3
MMBB 250 General Microbiology	5
Phys 111 General Physics I	4
Two courses chosen from Math 160, 161, 170, and 175	7-8

Third and Fourth Years

FST 303 Food Processing	3
FST 400 Seminar	1
FST 416, 417 Food Microbiology & Lab	4
FST 422 Food Quality Evaluation	3
FST/ASM 433, 434 Agricultural Processing Systems & Lab	4
FST 450 Food Fermentations	3
FST 460, 461 Food Chemistry & Lab	4
FST 462 Food Analysis	4
FST 470 Advanced Food Technology	3
FST commodity electives (FST 264, 301, 302, 304, or 363)	5-6
Engl 317 Technical & Engineering Report Writing	3
FCS 205 Concepts in Human Nutrition	3
MMBB 380 Introductory Biochemistry	4
Stat 251 Principles of Statistics	3
Electives to total 129-131 credits for the degree	—

Academic Minor Requirements

FOOD SCIENCE MINOR

FST 101 Introduction to Food Science	3
FST 303 Food Processing	3
FST 400 Seminar	1
FST 416, 417 Food Microbiology & Lab	4
FST 460 Food Chemistry	3
Additional courses in food science (FST)	4

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Food Science and Toxicology. See the College of Graduate Studies section of part 4 for general requirements applicable to degree programs. In addition, admission is based on compatibility of student's research interest with an area of concentration available within the department.

Master of Science. A Master of Science degree is offered in food science. The degree will prepare students for more advanced studies or higher entry level positions in academia, government, or private industry. The degree program emphasizes research and a thesis is required for graduation.

Department of Foreign Languages and Literatures

Richard M. Keenan, Dept. Chair (302 Admin. Bldg. 83844-3174; phone 208/885-6179; fax 208/885-8964; email forlang@uidaho.edu). *Faculty:* Judith A. Baker (Spanish), George Bridges (German), Franklin J. Inojosa (Spanish), Irina A. Kappler-Crookston (Spanish), Richard M. Keenan (Spanish), Cecelia E. Luschnig (Classics), Michael W. Moody (Spanish), Sarah M. Nelson (French), Louis A. Perraud (Classics), James R. Reece (German), Margaret Van Epp Salazar (Spanish), Gerd Steckel (German), Dennis D. West (Spanish), Joan M. West (French).

The study of a foreign language and literature is a way of expanding one's horizons while developing specific linguistic skills that will enhance career, academic, and travel opportunities. One of the many benefits derived from foreign-language study is the ability to transcend linguistic and cultural parochialism. To understand the uniqueness of one's own language and civilization, knowledge of another culture is essential. Language study is the key that unlocks the mysteries surrounding a foreign people. Through language, one is able to explore their literature, art, history, and philosophy—in short, their way of life. In preparing to meet the challenges of a rapidly changing and interdependent world, foreign language expertise plays an increasingly important role. In many areas (business, education, communications, social work, technical and engineering positions, science, law, medicine, etc.), knowledge of a second language is not only desirable but necessary.

The Department of Foreign Languages and Literatures offers major programs of study in three modern languages (Spanish, French, and German) as well as in classical studies and Latin. The department also offers elementary and intermediate level course work in Japanese. In addition, a cooperative course agreement with Washington State University in nearby Pullman makes it possible for students to complete basic course work in Chinese and Russian.

The department's business and computer science options offer students the opportunity to combine a foreign language major with pre-professional course work in these areas. Similarly, the international studies major allows students to combine advanced foreign language study with a specific issue and area study focus.

Language instruction at UI is proficiency-oriented in approach and encourages active student involvement from the outset. Language classes are small enough to allow for instructor-student interaction and to ensure that each student receives individual attention. Classroom instruction is supported by a fully equipped language learning laboratory with facilities for audiocassette, synchronized slide/sound, videocassette instruction, international programming, and computer assisted learning software.

The department actively encourages its students to pursue opportunities to work and/or study in foreign countries as part of their study program. Foreign language faculty advisers and the staff of the UI International Programs Office will gladly assist students in planning a semester's or year's study abroad.

If a student has already studied a foreign language in high school, he or she may be eligible to receive advanced placement credits simply by enrolling in a more advanced course at UI.

The department offers graduate work in French, German, and Spanish leading to the M.A.T. in these fields. The purpose of these graduate programs in languages, cultures, and literatures is to offer advanced scholarly preparation for careers in teaching and other fields for which a high level of competence in these disciplines is required.

Applicants holding or about to receive a B.A. in the language of proposed specialization, or equivalent linguistic proficiency and a B.A. in another field, or the equivalent, may be recommended for admission to the program with the majority concurrence of the language section of specialization.

The candidate will demonstrate proficiency in the second foreign language equivalent to that acquired in passing a fourth-semester level course with a grade of C or better. This requirement is to be completed as early as possible in the student's program if it is not already fulfilled at the time of admission to the program.

For further information, please consult the department chair (208/885-6179).

Courses

See part 6 for courses in English (FLEN), Chinese (Chin), French (Fren), German (Germ), Ancient Greek (Grek), Japanese (Japn), Latin (Latn), Russian (Russ), Scandinavian (Scan), Spanish (Span), and General Courses (FL).

Undergraduate Curricular Requirements

A maximum of 15 transfer credits and/or credits earned through study abroad may be applied toward the upper-division requirements for the B.A. degree in French, German, Latin, and classical studies. A maximum of 18 such credits may be applied toward the upper-division requirements for the B.A. degree in Spanish.

Students who receive a C or D in their first upper-division language class are required to pass an oral and written proficiency exam to meet minimum departmental proficiency standards before being allowed to register in other upper-division language classes.

A student must receive a C or better in an upper-division course in the appropriate target language to count towards the major.

Before going on a study abroad program, students must have the approval of their major adviser to ensure that their proposed program meets with departmental approval. Upon returning to UI, the Department of Foreign Languages and Literatures will evaluate the students' oral and written proficiency and determine which classes studied abroad may count towards the major.

CLASSICAL STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

FLEN 211 Classical Mythology (Gods) 2
FLEN 212 Classical Mythology (Heroes) 2
FLEN 243 English Word Origins 2
FLEN 363-364 Literature of Ancient Greece & Rome 6
FLEN 441 Ancient Greek Civilization 3
FLEN 442 Civilization of Ancient Rome 3
Grek 341-342 Elementary Greek (or equivalent) 8
Latn 101-102 Elem Latin I-II or 201-202 Intensive Latin (or equiv) 8
Additional Latin and/or Greek courses numbered above Latn 202 and Grek 342 (may incl up to 3 cr of adv lab courses in each language—Latn 369; Grek 349 other than basic skills) 18

Related fields or minor as approved by major adviser

FRENCH (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Fren 101-102 Elementary French I-II or equivalent 8
Fren 201-202 Intermediate French I-II or equivalent 8
300-level French courses 20
400-level French courses (minimum) 3
FLEN 313 Modern French Literature in Translation or 315 French Cinema (minimum) 3
Additional electives in upper-division French or related fields approved by chair or approved academic minor in a related field 15
A second foreign language (elem & interm or equivalent), waived for students with a double major (FL&L plus another major) 16

GERMAN (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Germ 101-102 Elementary German I-II or equivalent 8
Germ 201-202 Intermediate German I-II or equivalent 8
Upper-division courses in German language, lit, and culture including minimum of 12 cr from the following (at least one course from each grouping) and a minimum of 3 cr in 400-level German language & lit 21
Germ 321 German Conversation & Germ 322 German Grammar & Composition
Germ 325-326 German Culture & Institutions
Germ 327-328 Survey of German Literature
A second foreign language (elem & interm or equivalent), waived for students with a double major (FL&L plus another major) 16
Courses in related fields approved by chair or approved academic minor in a related area 20

LATIN (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Latn 101-102 Elementary Latin I-II (or equivalent) 8
FLEN 243 English Word Origins 2
FLEN 364 Literature of Rome 3
FLEN 442 Civilization of Ancient Rome 3
Upper-division courses in Latin 20
A second foreign language (elem and interm, or equivalent), waived for students with a double major (FL&L plus another major) 16
Related fields or academic minor (as approved by chair) 20

SPANISH (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Span 101-102 Elementary Spanish I-II (or equivalent) 8
Span 201-202 Intermediate Spanish I-II (or equivalent) 8
Span 301 Advanced Grammar 3
Span 302 Advanced Composition 3
Span 305 Culture & Institutions of Spain 3
Span 306 Culture & Institutions of Latin America 3
Upper-division courses in Spanish language (9 credits must be 400 level) 12
A second foreign language (elem and interm, or equivalent), waived for students with a double major (FL&L plus another major) 16
Related fields (as approved by chair) 16

A maximum of 3 credits in FLEN 391, 393, or 394 may be counted toward a major in Spanish.

FOREIGN LANGUAGES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

One foreign language, elementary and intermediate 16
Third-year language courses (Fren 301-302, Germ 321-322, Latn 365-366, Span 301-302) 6

And one of the following options:

A. BUSINESS OPTION

Designed to provide the student majoring in foreign languages with a liberal arts background and a component of business courses that will form a good beginning for entering a program leading to the degree of Master of Business Administration.

Approved upper-division foreign language courses (including one FL business course or approved alternative) 15
Acct 201-202 Intro to Financial Accounting & Intro to Managerial Accounting 6
BLaw 265 Legal Environment of Business 3
Either the College of Business and Economics Integrated Core (Bus 340-345*) or the following ..... 15 or 18
Bus 301 Financial Management (3 cr)
Bus 311 Introduction to Management (3 cr)
Bus 321 Marketing (3 cr)
Bus 350 Management Information Systems (3 cr)
Bus 380 International Business or Bus 482 International Marketing or Econ 446 International Economics or Econ 447 Economics of Developing Countries 3
Econ 272 Foundations of Econ Analysis or 201, 202 Prin of Economics 4-6
FLEN 307 The European Union 3
Stat 251 Principles of Statistics or 271 Statistical Inference & Decision Analysis* 3-4

* Students completing Bus 340-345 must take Stat 271 and, therefore, either Math 160 or 170.

B. COMPUTER SCIENCE OPTION

Designed to provide a student majoring in foreign languages with a liberal arts background and a component of computer science courses to prepare for admission to either the M.A.T. program in foreign languages or the M.S. program in computer science. This type of curriculum, involving competence in a foreign language as well as mathematical maturity, skill in the use of at least one programming language, and a basic knowledge of computer hardware, should also prove to be a fine background for developing interesting careers and/or graduate study in various fields, e.g., library science, international business, communications media, instructional media, and education.

Approved upper-division foreign language courses in French, German, or Spanish (15 cr) or FLEN 243, English Word Origins, and upper-division Latin and/or Greek courses (14 cr) 14-15
CS 112 Introduction to Problem Solving & Programming 3
CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
EE 243 Digital Logic 3
Math 170, 175 Analytic Geometry & Calculus 8
Math 176 Discrete Mathematics 3
Math 330 Linear Algebra 3
Stat 251 Principles of Statistics 3
Electives to total 128 cr for the degree (including at least 3 cr at the upper-division level) ..... —

Academic Minor Requirements

A maximum of 6 credits earned through study abroad may be applied toward the upper-division course requirements for a minor in French, German, Spanish, Latin, and Greek.

A student must receive a C or better for an upper-division course in the appropriate target language to count towards the minor.

CLASSICAL STUDIES MINOR

FLEN 211 Classical Mythology (Gods) 2
FLEN 212 Classical Mythology (Heroes) 2
FLEN 243 English Word Origins 2

And one of the following emphasis areas:

Language Emphasis

Grek 341-342 Elementary Greek 8
Latn 101-102 Elementary Latin I-II 8
Courses chosen from the following 3
Upper-division Latin or Greek
FLEN 363 Literature of Ancient Greece
FLEN 364 Literature of Rome

Ancient World Emphasis

FLEN 363 Literature of Ancient Greece 3
FLEN 364 Literature of Rome 3
FLEN 441 Ancient Greek Civilization 3
FLEN 442 Civilization of Ancient Rome 3
Grek 341 Elementary Greek or Latn 101 Elementary Latin I 4
Phil 309 History of Ancient Philosophy or Arch 385 History of Architecture I: Pre-Modern 3

FRENCH MINOR

Fren 101-102 Elementary French I-II 8
Fren 201-202 Intermediate French I-II 8
Fren 301 Adv French Grammar or 302 Adv French Writing Skills 3
Upper-div courses in French (not incl lab-based and lit in translation courses) 6

GERMAN MINOR

Germ 101-102 Elementary German I-II 8
Germ 201-202 Intermediate German I-II 8
Germ 321 German Conversation or 322 German Grammar & Composition 3
Upper-div courses in German (not incl lab-based and lit in translation courses) 6

GREEK MINOR

Grek 341-342 Elementary Greek 8
Grek 349 Advanced Greek lab (other than basic skills) 1-3
FLEN 211 and/or 212 Classical Mythology 2-4
FLEN 363 Literature of Ancient Greece 3
Advanced Greek readings (400-level) 6-8
Courses to total 25 credits for the minor chosen from the following ..... —
- Additional upper-division Greek courses
- FLEN 243 English Word Origins
- FLEN 364 Literature of Rome
- FLEN 441 Ancient Greek Civilization
- Phil 309 History of Ancient Philosophy

LATIN MINOR

Latn 101-102 or 201-202 Elementary or Intensive Latin 8
Latn 369 Advanced Latin Language Lab 1-3
FLEN 243 English Word Origins 2
FLEN 364 Literature of Ancient Rome 3
Advanced Latin readings (300- or 400-level) 6
Courses to total 25 credits for the minor chosen from the following ..... —
- Additional Latin reading courses at 300- or 400-level (especially recommended for prospective teachers of Latin)
- FLEN 211 Classical Mythology (Gods)
- FLEN 212 Classical Mythology (Heroes)
- FLEN 363 Literature of Ancient Greece
- FLEN 442 Civilization of Ancient Rome

SPANISH MINOR

Span 101-102 Elementary Spanish I-II 8
Span 201-202 Intermediate Spanish I-II 8
Span 301 or 302 Adv Grammar or Composition 3
Upper-div courses in Spanish (not incl lab-based and lit in translation courses) 6

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Foreign Languages and Literatures. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Arts in Teaching—Majors in French, German, or Spanish. General M.A.T. requirements apply.

Department of Forest Products

Thomas M. Gorman, Acting Dept. Head (102 FWR Bldg. 83844-1132; phone 208/885-9663; fprod@uidaho.edu). *Faculty:* Alton G. Campbell, Richard L. Folk, Thomas M. Gorman, Leonard R. Johnson, Harry W. Lee, Steven R. Shook, Francis G. Wagner. *Adjunct Faculty:* Louis L. Edwards, John S. Morris, Jay O'Laughlin. *Affiliate Faculty:* Keith A. Blatner, Ben S. Bryant, Manuel R. Jelvez.

Wood is a constant part of the lives of the people in this country and throughout the world. Nearly 80 percent of the material going into the construction of a home in the U.S. is wood based. It is also in the paper we use as newspapers, money, books, and packaging. In the U.S., every man, woman, and child consumes over 2,000 pounds of wood per year in the form of various products. The forest products industries rely on a renewable resource—trees—to produce over 5,000 different products for shelter, communications, packaging, and chemicals. Wood not only forms the raw material for the product, it also supplies a large portion of the energy needed by these industries. Many wood-using industries generate more than 50 percent of their energy requirements from wood residues. The industry utilizes almost all the wood fiber that is delivered to the mills and the innovation and modernization now taking place will assure a higher degree of efficiency and a greater level of utilization of the wood fiber.

The programs of the Forest Products Department are designed to prepare students for rewarding careers in an array of forest-products industries. Outstanding careers range from work with light-frame construction, forest engineering, log transport systems, pulp and paper manufacture, wood building products manufacture, and the business and marketing aspects of forest industries. In addition to jobs in industry, our graduates also obtain positions in a variety of governmental agencies and multinational corporations. A recent survey of graduates from the Forest Products Department showed that 95 percent of the respondents were employed in permanent, forest-products jobs or were in graduate school.

The Department of Forest Products cooperates with the wood technology program at Washington State University, the pulp and paper program at the University of Minnesota, the Department of Architecture at the University of Idaho, and the region's forest products industries in carrying out its program responsibilities. The forest products industry actively supports our programs through scholarships for undergraduate students.

The department offers four options within the B.S.For.Prod. degree. These include timber harvesting, wood construction and design, forest products business management, and pulp and paper technology.

The pulp and paper option is a cooperative program with the University of Minnesota. The student in this option spends the first three years at UI. The senior year is spent at the University of Minnesota, but the degree is awarded by the University of Idaho. This program permits access to the professional courses at both universities.

Facilities available to the department include a University Experimental Forest for use in the field work of the timber harvesting option and an experimental forest student logging crew that provides students with hands-on experience with timber harvesting and forest management. Forest products laboratory equipment (testing machine, wood flaker, blender, dry kiln, conditioning chambers, and microcomputer lab) provides students with hands-on experience with the manufacture and testing of a variety of forest products.

The department offers bachelor's, master's, and doctoral programs. The undergraduate programs are structured, but still allow the student to follow specific interests through course selection from restricted and unrestricted electives. A graduate student's program can be tailor-made to the student's career goals and aspirations. A variety of industrial organizations and public agencies provide funds and facilities to carry out research and this allows the department to offer assistantships and fellowships.

While graduate work is often undertaken by students who desire to enter careers in teaching and research, the program is also recommended for students who plan to enter production management and marketing careers. Work at the master's and doctoral levels is designed to enhance the student's professional background and is often pursued by those with backgrounds in forestry, business management, engineering, and other fields. For some students who plan to strengthen their background and enter the industrial and production fields, a nonthesis option at the master's level is available.

Graduate work can be undertaken in each of the department's principal areas: wood construction and design, wood technology and engineering, forest products business management and marketing, and timber harvesting.

Graduate students' research is closely integrated with that of the department's faculty. Emphasis areas currently include physical and mechanical properties of wood, wood chemistry, wood drying and preservation, technology of adhesives and particleboard, modeling and analysis of timber harvesting systems and equipment, recovery and use of wood for energy, forest road layout and construction, management and marketing in the forest products industry, value added manufacturing opportunities, and wood construction and design.

Breadth and diversity of opportunities for graduate students is enhanced by grants, contracts, and the department's cooperative relationships with government agencies, large forest industries, and nearby Washington State University.

Preferred preparation for graduate study in forest products is an undergraduate degree in forest products, forestry, forest business management, or civil, mining, or forest engineering, or a related field. Students with other backgrounds may be admitted but will usually be required to complete a number of courses to remove the deficiencies in their preparation.

Courses

See part 6 for courses in Forest Products (ForP).

Undergraduate Curricular Requirements

FOREST PRODUCTS (B.S.For.Prod.)

Required course work includes the university requirements (see regulation J-3) and one of the following options.

No more than 25 percent of the course work used for the forest products degree may be taken in business courses (excluding Econ 201 and 202). Specifically, of the 128 credits required, at most 32 credits taken in business courses may be counted toward the degree.

A. WOOD CONSTRUCTION AND DESIGN OPTION

This option is designed for students interested in residential and light commercial construction or design management positions that emphasize effective use of wood as a structural material. Students may focus in one of two emphasis areas. In the architectural technology emphasis area, the student will develop design skills in addition to a background in business and wood technology for positions in non-licensed design, specification writing, design-build construction, and architectural and construction liaison. Students selecting the wood construction business emphasis area will be prepared for careers that include both supervisory and managerial positions in residential and light commercial building and building materials, sales and marketing of wood products, estimating, banking, insurance, and government agencies that deal with housing. The wood construction and design option can also provide an educational foundation for those wishing to become entrepreneurs in the area of wood construction.

ForP 100 Forest Products Issues & Industries 1
ForP 250 Principles of Forest Products 2
ForP 277 Wood Structure & Identification 3
ForP 337 Physical & Mechanical Properties of Wood 3
ForP 365 Wood Building Technology 3
ForP 436 Wood Composites 3
ForP 437 Wood as a Structural Material 2
ForP 444 Lumber Manufacturing 3
ForP 450 Wood Deterioration & Preservation 2

ForP 480 Senior Project 2
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
Arch 156 Graphic Communication 2
Arch 255 Advanced Architectural Graphics 3
Arch 256 Basic Architectural Design 3
Arch 266 Materials & Methods 3
Arch 284 Computer-Aided Design 2
Arch 366 Building Technology I 3
Arch 463-464 Environmental Control Systems 8
Arch 475 Professional Practice I 3
Arch 499 DS: Wood Construct/Design (design project) 2
Biol 100 Introduction to Biology 4
BLaw 265 Legal Environmental of Business 3
Chem 101 Introduction to Chemistry I 4
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Engl 313 Business Writing or 317 Tech & Engr Report Writing 3
For 235 Society & Natural Resources 3
LArc 383 Architectural Site Design 3
Math 160 Survey of Calculus 4
Phys 111 General Physics I 4
Stat 251 Principles of Statistics 3
Additional core electives 9-11

And one of the following emphasis areas:

Architecture Technology Emphasis:

Arch 453-454 Architectural Design II 6
Electives chosen from the following 9
- Arch 476 Professional Practice II
- Art 111-112 Drawing I-II
- Bus 321 Marketing
- Bus 412 Human Resource Management
- Bus 414 Entrepreneurship
- Bus 427 Services Marketing
- ForP 230, 231, 232 Forest Land Measurements
- For 320 Dendrology
- IA 151 Interior Architecture
- IA 152 Interior Architecture I
- LArc 270 Landscape Construction I
- LArc 389 History of Landscape Architecture

Electives to total 128 credits for the degree ..... —

Construction Business Emphasis:

Acct 381 Accounting for Managers & Investors 3
Bus 311 Introduction to Management 3
Electives chosen from the following 9
- ForP 230, 231, 232 Forest Land Measurements
- ForP 477 Forest Products Business Management
- Bus 261 Real Estate
- Bus 321 Marketing
- Bus 362 Real Property Appraisal
- Bus 364 Insurance
- Bus 412 Human Resource Management
- Bus 414 Entrepreneurship
- Bus 427 Services Marketing
- For 320 Dendrology
- LArc 270 Landscape Construction

Electives to total 128 credits for the degree ..... —

B. TIMBER HARVESTING OPTION

This program area prepares students to work as managers and planners for logging operations in small timber harvesting firms, larger forest products companies, forest engineering consulting organizations, and government agencies. The program provides background in development and design of harvesting plans and timber sales, supervision of logging crews, design and layout of roads, management of logging operations, and wood procurement. Other positions can be found in the areas of equipment development and marketing and as technical representatives for equipment companies. Beyond the courses required in the basic sciences and timber harvesting, students may choose course work that will also emphasize technology and engineering or natural resources management.

ForP 100 Forest Products Issues & Industries 1
ForP 230, 231, 232 Forest Land Measurements 3
ForP 250 Principles of Forest Products 2
ForP 277 Wood Structure & Identification 3
ForP/RRT/Rnge/For/Fish/WLF 302 Wildland Field Ecology 2
ForP 336 Introduction to the Pulp & Paper Industry 1
ForP 337 Physical & Mechanical Properties of Wood 3
ForP 430 Forest Engineering & Harvesting 3
ForP 431 Production & Cost Control in Forest Industry 3
ForP 432 Low Volume Forest Roads 3
ForP 433 Forest Tractor System Analysis 3
ForP 434 Cable Systems Analysis 3
ForP 444 Lumber Manufacturing 3
ForP 450 Wood Deterioration & Preservation 2
ForP/For/RRT/Rnge/WLF/Fish 470 Interdisciplinary Natural Resource Planning 3
Chem 101 Introduction to Chemistry I 4
Comm 101 Fundamentals of Public Speaking 2
CS 112 Intro to Problem Solving & Programming or ASM 240
- Computer Applications in Biological Systems or
- For 294 Quantitative Resource Analysis 3

Econ 201, 202 Principles of Economics 6
Engl 313 Business Writing or 317 Tech & Engr Report Writing 3
For/Rnge/WLF 221 Natural Resources Ecology 3
For/RRT 235 Society & Natural Resources 3
For 270 Principles of Forest Ecosystem Management 2
For 274 Forest Measurement Techniques 1
For 374 Forest Mensuration 3
Soil 205 General Soils 3
Stat 251 Principles of Statistics 3
Two of the following 4-6
- Fish/WLF 290 Fish & Wildlife Ecology, Management, & Conservation
- Rnge 251 Principles of Range Resources Management
- RRT 287 Professional Foundations of Resource Recreation & Tourism

Social sciences and humanities electives 8-10

And one of the following emphasis areas:

Technical Emphasis

Biol 100 Introduction to Biology 4
CE 316 Advanced & Route Surveys or Geog/LArc 385 GIS Primer 3
CE 321 Hydrology 3
Engr 210 Engineering Statics 3
Engr 220 Engineering Dynamics 3
Math 170, 175 Analytic Geometry & Calculus I, II 8
Phys 211, 212 Engineering Physics I-II 6
Electives to total 128 cr for the degree ..... —

Resource Emphasis

Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
For 320 Dendrology 3
For 424 Silviculture II 2
For 462 Watershed Management 2
Geog/LArc 385 GIS Primer 3
Math 160 Survey of Calculus or 170 Analytic Geom & Calculus I 4
Phys 111 General Physics I or 211 Engineering Physics I 3
Electives to total 128 cr for the degree ..... —

C. FOREST PRODUCTS BUSINESS MANAGEMENT OPTION

This program is designed for students who plan careers in the staff or line management of firms in the forest products industry. Graduates are prepared for positions in production management, marketing and distribution of wood products, and in the technical service and support areas of the forest products industry. Students focus on the production, distribution, and marketing of wood products from a combined technical and managerial perspective. The degree also provides a foundation for pursuing a graduate degree in business, for example, the M.B.A. or M.S.

ForP 100 Forest Products issues & Industries 1
ForP 250 Principles of Forest Products 2
ForP 277 Wood Structure & Identification 3
ForP 336 Introduction to the Pulp & Paper Industry 1
ForP 337 Physical & Mechanical Properties of Wood 3
ForP 425 Wood, Wood Products, & Marketing 2
ForP 426 Quality Control in Wood Products Manufacture 2
ForP 430 Forest Engineering & Harvesting 3
ForP 431 Production & Cost Control in Forest Industry 3
ForP 436 Wood Composites 3
ForP 444 Lumber Manufacturing 3
ForP 450 Wood Deterioration & Preservation 2
ForP/For/RRT/WLF/Rnge/Fish 470 Interdisciplinary Natural Resource Planning 3
ForP 477 Forest Products Business Management 2
ForP 498 Renewable Natural Resources Internship 1
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
Biol 100 Introduction to Biology 4
BLaw 265 Legal Environment of Business 3
Bus 301 Financial Management 3
Bus 311 Introduction to Management 3
Bus 321 Marketing 3
Bus 332 Quantitative Methods in Business 3
Bus 370 Production/Operations Management 3
Chem 101 Introduction to Chemistry I 4
Comm 101 Fundamentals of Public Speaking 2
CS 112 Intro to Problem Solving & Programming or ASM 240
- Computer Applications in Biological Systems or
- For 294 Quantitative Resource Analysis 3

Econ 201, 202 Principles of Economics 6
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
For/Rnge/WLF 221 Natural Resources Ecology 3
For/RRT 235 Society & Natural Resources 3
For 270 Principles of Forest Ecosystem Management 2
For 302 Wildland Field Ecology or ForP 480 Senior Project 2
For 320 Dendrology 3
Math 160 Survey of Calculus 4
Phil 103 Ethics 3
Phys 111 General Physics I 3
Stat 251 Principles of Statistics 3
Two of the following 4-5
- Fish/WLF 290 Fish & Wildlife Ecology, Management, & Conservation
- Rnge 251 Principles of Range Resources Management
- RRT 287 Professional Foundations of Resource Recreation & Tourism

Humanities or social science courses to satisfy regulation J-3 6
Electives to total 128 cr for the degree ..... —

D. PULP AND PAPER TECHNOLOGY OPTION

This innovative cooperative program allows the student to take advantage of courses at both UI and the University of Minnesota. Senior year courses are taken at the University of Minnesota through an exchange program. Students receive their degree from UI. Graduates are prepared for employment in the pulp and paper industry as process engineers and this entry position can lead to careers in pulp and paper mills in areas such as production engineering, plant supervision, and quality control. Demand for graduates is high and salaries are similar to those of engineering graduates with the pulp and paper industry projecting good growth over the next two decades.

ForP 100 Forest Products Issues & Industries 1
ForP 250 Principles of Forest Products 2

ForP 277 Wood Structure & Identification 3
ForP 420 Pulp & Paper Technology 3
ForP 431 Production & Cost Control in Forest Industry
or ForP 462 Analysis of Production Systems 2-3
ForP 438 Wood Chemistry 3
ForP 463 Pulp & Paper Process Lab 2
ForP 464 Pulp & Paper Process Calculations 2.7
ForP 465 Pulp & Paper Process Operations 2.7
ForP 466 Paper Engineering Lab 1.3
ForP 467 Coated Product Development 1.3
ForP 469 Surface & Colloid Chemistry of Papermaking 2
ForP 471 Pulp & Paper Process Dynamics & Control 2
ForP 472 Biological & Environmental Science of Pulp & Paper 2
ChE 123 Computations in Chemical Engineering 2
ChE 223 Material & Energy Balances 3
Chem 111-112 Principles of Chemistry I-II 8
Chem 277, 278 Organic Chemistry I & Lab 4
Chem 302 Principles of Physical Chemistry 3
Chem 372 Organic Chemistry II 3
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Engr 210 Engineering Statics 3
Engr 320 Engineering Thermodynamics & Heat Transfer 3
Engr 335 Engineering Fluid Mechanics 3
Engl 317 Technical & Engineering Report Writing 3
For 270 Principles of Forest Ecosystem Management 2
For/RRT 235 Society & Natural Resources 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
Phys 211, 212 Engineering Physics I, II 6
Stat 301 Probability & Statistics 3
Electives to total 128 cr for the degree ..... —

Academic Minor Requirements

FOREST PRODUCTS MINOR

For students in business, engineering, forestry, or vocational education who wish to gain specific background and knowledge related to the forest products industry.

ForP 250 Principles of Forest Products 2
ForP 277 Wood Structure & Identification 3
ForP 430 Forest Engineering & Harvesting 3
Electives in forest products 10

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Forest Products. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. Programs are offered with specialization in the areas mentioned above.

Doctor of Philosophy. Through the Department of Forest Products, students seeking the Ph.D. degree in forestry, wildlife and range sciences may specialize in the areas mentioned above. See the FWR section in part 3 for details.

Department of Forest Resources

Jo Ellen Force, Dept. Head (204 FWR Bldg. 83844-1133; phone 208/885-7952; e-mail fores@uidaho.edu). *Faculty:* Steven J. Brunsfeld, Lauren Fins, Jo Ellen Force, Paul E. Gessler, Charles R. Hatch, Kathleen L. Kavanagh, Gary E. Machlis, Ronald L. Mahoney, John D. Marshall, Charles W. McKetta, James A. Moore, Penelope Morgan, Leon F. Neuenschwander, A. George Newcombe, Jay O'Laughlin, Harold L. Osborne, Andrew P. Robinson, Molly W. Stock, David L. Wenny. *Adjunct Faculty:* Roberto A. Avila, R. Kasten Dumroese, Robert L. Mahler, Jean E. McKendry, M. Henry Robison, Michael J. Scott, Michael R. Whiteman.

The Department of Forest Resources offers programs leading to the degrees of: Bachelor of Science in Forest Resources, with options in administration, forest ecosystem management, and science; Master of Science (thesis and nonthesis options); and Doctor of Philosophy with a major in forestry, wildlife, and range sciences (administered at the college level for all departments).

Bachelor of Science in Forest Resources. Forestry is "managing and using for human benefit the forest lands and natural resources that occur on and in association with forest lands." These benefits may include values, services, or products such as stable human communities, aesthetics, biodiversity, recreational opportunities, clean water and air, soil protection, forage, fish and wildlife, medicinal and ornamental items, wood products, and many others.

One-third of the nation's land area and 40 percent of Idaho's land area are forested. It is imperative that the managers of these lands and of the valuable resources thereon be properly prepared for the task of providing on a sustainable basis the many values, services, and goods desired and demanded by the people. With an increasingly restricted forest land base and an increasing demand for forest benefits, the practice of forestry is rapidly becoming more complex. Present-day forest management requires professionals highly trained in an interdisciplinary approach that adapts to scientific developments and sociological and economic constraints while sustaining healthy forest ecosystems.

The instructional goal of the Department of Forest Resources is to provide both undergraduate and graduate students of all nationalities with a high-quality general education and the professional knowledge of significant concepts, multiple use principles, social factors, and technical details of forest resources biology, measurements, management, and social science to effectively manage forest resources.

To attain this goal, the departmental faculty and administration will: emphasize the dynamic nature of the sciences and technologies by teaching new concepts and methods and revising the curriculum as necessary; stress understanding rather than rote learning of facts and principles; provide challenging programs to develop individual talents and interests; maintain class sizes in laboratory and field-oriented courses at a level commensurate with instructional effectiveness; maintain student-faculty ratios that allow for more personalized instruction and advising; expand and improve instructional facilities; develop more efficient and effective instructional techniques; expand field-oriented programs, especially at the Experimental Forest and the Forest Nursery, at Moscow and other field stations; encourage and assist students in finding seasonal professional employment and opportunities for involvement in student clubs and professional organizations; and encourage development and research programs for faculty to increase their abilities to pass their knowledge on to others.

The forest resources curriculum not only provides students with an interdisciplinary education, but also the opportunity to emphasize areas of individual interest, such as ecology, forest ecosystem processes, forest social sciences, computer applications in forestry, aerial-photo interpretation (remote sensing), geographic information systems, silviculture, forest genetics and tree improvement, protection against insects, disease, and fire, tree nursery management, and other specialities by selective use of elective credits.

The three specialty options in the forest resources curriculum provide each student with an opportunity to select a course of study suited to his or her primary career goal. The administration option combines basic forest biological skills with the business management and administrative skills necessary for such positions in both public and private forestry. The forest ecosystem management option involves the study and maintenance of sustainable ecosystems for a wide variety of resource values with an emphasis on the production of renewable commodities, especially timber. The science option provides flexibility of curricular programming for the student who has specific curricular objectives not readily obtainable under the other options. The latter is particularly attractive for the student who anticipates going on to graduate study. Entry into the science option requires an application, sophomore standing, and one semester in residence. A 3.00 grade-point average must be maintained on an academic year basis for all subsequent course work completed after acceptance into the option. The program for each student is individually designed by the student in consultation with and approval of the committee and appropriate advisers. A two-week summer session immediately following the sophomore year is required for all options.

The educational programs in administration, forest ecosystem management, and science, leading to the first professional degree in forestry of Bachelor of Science in Forest Resources, are accredited by the Society of American Foresters (SAF). SAF is the specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation as the accrediting agency for forestry in the United States.

Graduate Programs. There are over 20 million acres of forested land in Idaho with varied ownership and practices. This resource provides excellent study opportunities for graduate students in forest resources. Graduate programs are offered in most areas of specialization of forest resources, including administration/policy, agroforestry, community/social forestry, ecology/ecosystem processes, expert systems, extension, fire ecology/management, genetics/tree improvement/ecogenetics, hydrology/watershed management, land use planning, management decision analysis, mensuration/inventory, growth and yield, nursery management, remote sensing/geographic information systems, silviculture, sociology of natural resources, forest ecosystem management/sustainable forestry, tree physiology, restoration/conservation biology, renewable resource economics, environmental studies/management, forest investment/business and finance, forest protection/entomology/pathology, and regeneration.

Admission to the program is based on: evidence of ability to complete graduate-level work as discerned from undergraduate transcripts, the applicant's statement of career objectives, and letters of recommendation; the compatibility of the student's educational and career objectives with faculty expertise and departmental objectives; and availability of graduate faculty to act as major adviser for an applicant. The GRE is not required but is recommended for both the applicant's and faculty's understanding of the student's capabilities. An undergraduate degree related to our programs is also recommended but an applicant may be accepted with the understanding that certain course deficiencies may be required by the student's advisory committee.

Further information can be obtained from the department head (208/885-7952).

Courses

See part 6 for courses in Forest Resources (For).

Undergraduate Curricular Requirements

FOREST RESOURCES (B.S.For.Res.)

Students pursuing a B.S. degree in forest resources (all options) must have received a grade of C or better in the following indicator courses to register for upper-division courses in forest resources: Math 160 and Stat 251. Students must also have a minimum cumulative grade-point average of 2.00 in forest resource (For) courses to qualify for the B.S. degree in forest resources (all options).

The minimum number of credits for the degree is 128. This does not include Math 143 or three years of high school algebra, Math 144 or high school trigonometry, Phys 100 or 111 or high school physics, and other courses that might be required to remove deficiencies.

Required course work includes the university requirements (see regulation J-3) and:

For/Rnge/WLF 221 Natural Resources Ecology 3
For/RRT 235 Society & Natural Resources 3
For 270 Principles of Forest Ecosystem Management 2
For 274 Forest Measurement Techniques 1
For 294 Quantitative Resource Analysis 3
For/Rnge/RRT/WLF/ForP/Fish 302 Wildland Field Ecology 2
For/Rnge/RRT/WLF/ForP/Fish 470 Interdisciplinary Natural Resource Planning 3
Two of the following courses 4-6
Fish 314 Fish Ecology
ForP 250 Principles of Forest Products
Rnge 251 Principles of Range Resources Management
RRT 287 Principles of Resource Recreation & Tourism Management
WLF 314 Wildlife Ecology I

Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Chem 101 Introduction to Chem I or 111 Principles of Chem I 4
Comm 101 Fundamentals of Public Speaking 2
Econ 202 Principles of Economics 3
Engl 317 Technical & Engr Report Writing or 313 Business Writing 3
ForP 230, 231 Forest Land Measurements I-II 2
Geol 101 Physical Geology 4
Math 160 Survey of Calculus or Math 170 Analytic Geom & Calculus 4
Soil 205, 206 General Soils & Lab 4
Stat 251 Principles of Statistics 3
Humanities and social science courses 11

And one of the following options:

A. ADMINISTRATION OPTION

For 320 Dendrology 3
For 324 Silviculture I 2
For 374 Forest Mensuration 3
For 383 Economics for Natural Resource Managers 3
For 424 Silviculture II 2
For 462 Watershed Management 2
For 476 Forestry Project Evaluation 3
For 477 Integrated Forest Management Models 3
Operating environment restrictive electives—choose one of the following 2-3
- For 484 Forest Policy & Administration
- BLaw 265 Legal Environment of Business
- Bus 311 Introduction to Management
- ForP 477 Forest Products Business Management

Business skills restrictive elective—choose one of the following 3
- For 361 Farm & Natural Resource Appraisal
- Acct 202 Introduction to Managerial Accounting
- AgEc 451 Land & Natural Resource Economics
- Bus 321 Marketing
- Bus 332 Quantitative Methods in Business
- Bus 350 Management Information Systems
- Bus 412 Human Resource Management

One additional upper-division course from either of the above restrictive elective groups 2-3
Acct 201 Introduction to Financial Accounting 3
Electives to total 128 credits for the degree ..... —

B. FOREST ECOSYSTEM MANAGEMENT OPTION

For 320 Dendrology 3
For 324 Silviculture I 2
For 330 Forest Ecosystem Processes 3
For 374 Forest Mensuration 3
For 375 Airphoto Interpretation & Mapping 3
For 383 Economics for Natural Resource Managers 3
For 424 Silviculture II 2
For 462 Watershed Management 2
For 466 Forest Disease & Insect Problems 3
For 474 Forest Resource Inventories 3
ForP 430 Forest Engineering & Harvesting 3
Ecology restrictive elective—choose one of the following 2-4
- Fish/Rnge 430 Riparian Ecology & Management (2 cr)
- Fish 415 Limnology (4 cr)
- For 426 Wildland Fire Management & Ecology (3 cr)
- Rnge 459 Rangeland Ecology (3 cr)
- WLF 316 Wildlife Ecology II (3 cr)

Decision-analysis restrictive elective—choose one of the following 3
- For 476 Forestry Project Evaluation
- For 477 Integrated Forest Management Models

Social/political environment restrictive elective 2-3
- For 484 Forest Policy & Administration (2 cr)
- PolS 464 Politics of the Environment (3 cr)
- RRT 486 Public Involvement in Natural Resource Management (3 cr)
- WLF/Rnge 493 Environmental Law (2 cr)

Electives to total 128 credits for the degree ..... —

C. SCIENCE OPTION

This option is designed for students who have specific curricular objectives not readily obtainable under the other options. Entry requires an application, sophomore standing, and one semester in residence. A 3.0 grade-point average must be maintained on an academic year basis for all subsequent course work completed after acceptance into the option.

For 497 Senior Thesis or 498 Renewable Natural Resources Internship 2
Quantitative electives 6
Professional electives 12
Natural or social science electives (other than UI core) 12
Electives to total 128 credits for the degree ..... —

NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Forestry, Wildlife and Range Sciences (General)" below.

Academic Minor Requirements

FOREST RESOURCES MINOR

For/Rnge/WLF 221 Natural Resources Ecology 3
For 235 Society & Natural Resources 3
For 270 Principles of Forest Ecosystem Management 2
For 320 Dendrology 3
For 484 Forest Policy & Administration 2
One of the following courses 3
- For 374 Forest Mensuration
- For 375 Airphoto Interpretation & Mapping
- For 383 Economics for Natural Resource Managers

One of the following courses 2-3
- For 330 Forest Ecosystem Processes
- For 426 Wildland Fire Management & Ecology
- For 462 Watershed Management
- ForP 430 Forest Engineering & Harvesting
- Rnge 430 Riparian Ecology & Management
- WLF 314 Wildlife Ecology I

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Forestry, Wildlife and Range Sciences.

Master of Science. Thesis and nonthesis options are offered. (A) Thesis option: General M.S. requirements apply. However, the thesis may be comprised of a manuscript(s) in a form acceptable for publication in a refereed journal, while otherwise fulfilling format requirements of the Graduate College. (B) Nonthesis option: General M.S. requirements apply. A written and/or oral examination that covers graduate course work must be taken during the final semester in residence. At least one professional paper is required and will be evaluated by the candidate's supervisory committee.

Doctor of Philosophy. The Ph.D. degree is available with a major in forestry, wildlife and range sciences. General Ph.D. requirements apply; see the FWR section for details.

Forestry, Wildlife and Range Sciences (General)

Charles R. Hatch, Dean, College of Natural Resources (202C FWR Bldg. 83844-1138; phone 208/885-2397); Alton G. Campbell, Associate Dean.

With approximately 90 percent of its area in forest and range lands, together with its wealth of water resources, Idaho offers excellent opportunities for undergraduate and graduate study in all the disciplines related to management of renewable resources of wildlands. The college has its own research organization, the Forest, Wildlife and Range Experiment Station, including the Idaho Cooperative Fish and Wildlife Research Unit and the Cooperative Park Studies Unit. All faculty members have teaching responsibilities in the college as well as research responsibilities in the experiment station. Additional facilities include the Wilderness Research Center with a field station in the River of No Return Wilderness Area, the Lee A. Sharp Experimental Area near Burley, Idaho, the McCall Field Campus in central Idaho, the Clark Fork Field Campus in northern Idaho, and the USDA Forest and Range Experiment Station, Forestry Sciences Laboratory, in Moscow.

Admission for graduate study normally requires completion of course work equivalent to that required in one of the undergraduate curricula offered by the college. Students with differing backgrounds but substantial preparation in the sciences may also be admitted. The study plans developed will allow for differences in preparation while providing all students with comparable backgrounds by the time the graduate program is completed.

Courses

See part 6 for courses in Forestry, Wildlife and Range Sciences (FWR).

Undergraduate Curricular Requirements

NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

Improving global environmental conditions requires researchers and other citizens who can understand ecological principles, who can analyze and interpret ecological conditions, and who predict the consequences of alternative natural resource management decisions. Understanding the importance of social values and policy for ecology and management of rare, threatened, and endangered species and their habitat is necessary to reverse the order of their decline. In the natural resources ecology and conservation biology program, students learn to apply biological, ecological, social, and political understanding to solve problems related to long-term conservation of biological diversity and to sustainable management of ecosystems.

This degree combines the biological, ecological, and social sciences to provide (1) an interdisciplinary understanding of the composition, structure, and processes of ecosystems, and (2) the skills necessary to provide long-term planning for the conservation and sustainable management of populations, species, and ecosystems.

Students will examine topics from molecular to landscape scales, and integrate the social and biophysical worlds. Graduates will be equipped to address the issues and problems of sustainable resource use, conservation of rare, threatened, or endangered biota, management of ecosystems, and long-term conservation of biological diversity. This program is flexible enough to adapt to the interests of individual students, while remaining firmly grounded in ecological principles applicable to species, populations, communities, landscapes, and ecosystems. It is distinctly different from the emphasis on management in the other forestry, wildlife, fisheries, range, and resource recreation and tourism programs, or the more general environmental science programs. Graduates of the program often continue advanced studies at national and international universities. This natural resources "liberal science" degree can also serve as pre-professional training for law school, or for professional positions in federal, state, and private environmental organizations including local and regional planning groups and consulting firms.

The program requires 128 credits, and students must choose either the natural resources ecology or conservation biology option. To register for upper-division courses in Fish/For/Rnge/RRT/WLF, students must have a "C" or better in each of the following indicator courses: Biol 202 and 203, Stat 251, For/Rnge/WLF 221.

Required course work includes the university requirements (see regulation J-3) and:

Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Bot 241 Systematic Botany or For 320 Dendrology or
  Rnge 353 Rangeland Plant Identification & Ecology 3
Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I 4
Comm 101 Fundamentals of Public Speaking 2
Econ 202 Principles of Economics 3
Engl 317 Technical & Engineering Report Writing 3
Fish/For/RRT/WLF 302 Wildland Field Ecology 2
Fish/For/ForP/Rnge/RRT/WLF 497 Senior Thesis or
  Fish/For/ForP/Rnge/RRT/WLF 485 Natural Resources
  Ecology & Conservation Biology Internship 2
For/Rnge/WLF 221 Natural Resources Ecology 3
For/RRT 235 Society & Natural Resources 3
For 383 Economics for Natural Resource Managers 3
For 470 Interdisciplinary Natural Resource Planning 3
For 480 Senior Project Planning 1
For 481 Senior Project Presentation 1
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
Phil 103 Ethics 3
Phys 100 Fundamentals of Physics 4
Stat 251 Principles of Statistics 3
Quantitative resource analysis restricted electives (two courses from the following) 5-6
  For 375 Airphoto Interpretation & Mapping (3 cr)
  For 472 Remote Sensing of Environment (3 cr)
  For 476 Forestry Project Evaluation (3 cr)
  For 477 Integrated Forest Management Models (3 cr)
  Geog 385 GIS Primer (3 cr)
  Math 435 Topics in Applied Mathematics: Mathematical Biology (3 cr)
  Rnge 357 Rangeland & Riparian Habitat Assessment (3 cr)
  Stat 401 Statistical Analysis (3 cr)
  Stat 422 Sampling Methods (2 cr)
  Stat/GeoE 428 Geostatistics (3 cr)
Resource management restricted electives (two courses from the following) 4-8
  Fish 418 Fisheries Management (4 cr)
  For 424 Silviculture II (2 cr)
  For 462 Watershed Management (2 cr)
  Rnge 354 Wildland Vegetation Management & Restoration (3 cr)
  Rnge 456 Integrated Rangeland Management (3 cr)
  RRT 385 Resource Recreation & Tourism Management (3 cr)
  RRT 484 Management of Recreation Sites & Leisure Settings (2 cr)
  RRT 490 Wilderness Management (3 cr)
  RRT 492 International Land Preservation Systems (3 cr)
  RRT 496 Monitoring Human Impacts in Wilderness (3 cr)
  WLF 445 Nongame Management (2 cr)
  WLF 492 Wildlife Management (4 cr)

And one of the following options:

A. NATURAL RESOURCES ECOLOGY OPTION

The natural resources ecology option combines ecological theory, field experience, and quantitative tools to gain an interdisciplinary understanding of the structure and function of ecosystems. This field covers ecological topics from local, regional, and landscape scales while integrating the social and biophysical worlds.

To graduate in this option, students must achieve a "C" or better in the following seven core courses: Fish/For/Rnge/RRT/WLF 200, For 294, For 330, For/Rnge 404, Rnge 459, Soil 205/206, WLF 448.

Fish/For/Rnge/RRT/WLF 200 Seminar 1
For 294 Quantitative Resource Analysis 3
For 330 Forest Ecosystem Processes 3
For/Rnge 404 ST: Landscape Ecology of Forests & Rangelands 2
Rnge 459 Rangeland Ecology 3
Soil 205/206 General Soils & Lab 4
WLF 448 Fish & Wildlife Population Ecology 4
Ecology restricted electives (four courses from the following) 9-13
  Biol 442 Biological Evolution (3 cr)
  Bot 432 Plant Ecology (3 cr)
  Ent 472 Aquatic Entomology (3 cr)
  Fish 415 Limnology (4 cr)
  Fish/Rnge 430 Riparian Ecology & Management (2 cr)
  For 423 Forest Community Ecology (1 cr)
  For 426 Wildland Fire Management & Ecology (3 cr)
  For 466 Forest Disease & Insect Problems (3 cr)
  MMBB 425 Microbial Ecology (3 cr)
  PlSc 410 Biology of Weeds (3 cr)
  WLF 314 Wildlife Ecology I (3 cr)
  WLF 440 Conservation Biology (3 cr)
  WLF 441 Behavioral Ecology (3 cr)
  Zool 478 Animal Behavior (3 cr)
Social/political restricted electives (two courses from the following) 5-6
  AgEc 356 Agricultural Programs & Policies (3 cr)
  Comm 331 Conflict Management (3 cr)
  Econ 385 Environmental Economics (3 cr)
  For 484 Forest Policy & Administration (2 cr)
  Geog 420 Land & Resource Regulation (3 cr)
  Geog 444 Environmental Assessment (3 cr)
  Hist 424 American Environmental History (3 cr)
  Phil 452 Environmental Philosophy (3 cr)
  PolS 464 Politics of the Environment (3 cr)
  RRT 486 Public Involvement in Natural Resource Management (3 cr)
  RRT 489 Personalities & Philosophies in Conservation (2 cr)
  RRT 493 International Issues in Nature Conservation (3 cr)
  WLF 493 Environmental Law (2 cr)
Electives to total 128 credits for the degree ..... —

B. CONSERVATION BIOLOGY OPTION

The conservation biology option is centered around a multidisciplinary curriculum that provides students with the necessary tools to maintain the earth's biodiversity including natural ecological and evolutionary processes. This option provides a broad-based education that covers all levels of the biological hierarchy ranging from the genetic level to the landscape level, and provides additional training in social sciences and management. In the words of Hunter (1996), "Conservation biology is cross-disciplinary, reaching far beyond biology into subjects such as philosophy, economics, and sociology—disciplines that are concerned with the social environment in which we practice conservation—as well as into subjects such as law and education that determine the ways we implement conservation."

To graduate in this option, students must achieve a "C" or better in the following eight core courses: Biol 442, Fish/For/Rnge/RRT/WLF 200, For/Rnge 404, Gene 314, Phil 452, RRT 492, WLF 440, WLF 448.

Biol 442 Biological Evolution 3
Fish/For/Rnge/RRT/WLF 200 Seminar 1
For/Rnge 404 ST: Landscape Ecology of Forests & Rangelands 2
Gene 314 General Genetics 3
Phil 452 Environmental Philosophy 3
RRT 492 International Land Preservation Systems 3
WLF 440 Conservation Biology 3
WLF 448 Fish & Wildlife Population Ecology 4
Ecology restricted electives (4 credit minimum) 4-7
  Bot 432 Plant Ecology (3 cr)
  Ent 472 Aquatic Entomology (3 cr)
  Fish 415 Limnology (4 cr)
  Fish/Rnge 430 Riparian Ecology & Management (2 cr)
  For 423 Forest Community Ecology (1 cr)
  For 426 Wildland Fire Management & Ecology (3 cr)
  For 466 Forest Disease & Insect Problems (3 cr)
  MMBB 425 Microbial Ecology (3 cr)
  PlSc 410 Biology of Weeds (3 cr)
  Rnge 459 Rangeland Ecology (3 cr)
  WLF 314 Wildlife Ecology I (3 cr)
  WLF 441 Behavioral Ecology (3 cr)
  Zool 478 Animal Behavior (3 cr)
Organismal biology elective (one course from the following) 3-4
  Biol/Ent 211 General Entomology (4 cr)
  Zool 481 Ichthyology (4 cr)
  Zool 482 Natural History of Birds (3 cr)
  Zool 483 Natural History of Mammals (3 cr)
Social/political restricted electives (two courses from the following) 4-6
  AgEc 356 Agricultural Programs & Policies (3 cr)
  Comm 331 Conflict Management (3 cr)
  Econ 385 Environmental Economics (3 cr)
  For 484 Forest Policy & Administration (2 cr)
  Geog 420 Land & Resource Regulation (3 cr)
  Geog 444 Environmental Assessment (3 cr)
  Hist 424 American Environmental History (3 cr)
  PolS 464 Politics of the Environment (3 cr)
  RRT 486 Public Involvement in Natural Resource Management (3 cr)
  RRT 489 Personalities & Philosophies in Conservation (2 cr)
  RRT 493 International Issues in Nature Conservation (3 cr)
  WLF 493 Environmental Law (2 cr)
Electives to total 128 credits for the degree ..... —

Academic Minor Requirements

FORESTRY, WILDLIFE AND RANGE SCIENCES MINOR

Note: Not open to students pursuing a major in the College of Natural Resources.

For 235 Society & Natural Resources 3
For/Rnge/WLF 221 Natural Resources Ecology 3
Courses chosen from at least three of the following subjects, including
  at least 3 credits at the 300 level or above 12
  Fishery Resources (Fish)
  Forest Products (ForP)
  Forest Resources (For)
  Range Resources (Rnge)
  Resource Recreation and Tourism (RRT)
  Wildlife Resources (WLF)

Graduate Degree Programs

Candidate must fulfill the requirements of the College of Graduate Studies and of the College of Natural Resources. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. Thesis and nonthesis options are offered with majors in fishery resources, forest products, forest resources, rangeland ecology and management, resource recreation and tourism, and wildlife resources. See the respective departmental sections for details.

Master of Natural Resources. General M.N.R. requirements apply. To provide the breadth of knowledge required in this 30-credit degree, students must complete a minimum of two courses in each of the four major emphasis areas (management, human dimensions, ecology and resources, and tools and technology). Students will select courses based on their academic background and career goals. Students must also complete two 3-day, 1-credit

colloquia to be offered on the UI campus. An additional 6 credits of adviser-approved electives is to be selected from nonlisted courses. The M.N.R. Committee may approve course substitutions.

Doctor of Philosophy. General Ph.D. requirements apply. Doctoral candidates are required to have an understanding of the principles of resource management in areas other than that chosen as a specialization. There is no general college requirement of proficiency in a foreign language for the doctorate, but one may be required by an individual student's committee where this seems desirable.

There is only one major for the Ph.D. degree—"forestry, wildlife and range sciences"; however, dissertation topics are selected from disciplinary areas within each department. The single designation for the major is in keeping with the college's philosophy of integrated resource management.

Department of Geography

Harley E. Johansen, Dept. Head (203 McClure Bldg. 83844-3021; phone 208/885-6216; e-mail geog@uidaho.edu; http://www.mines.uidaho.edu/geography). *Faculty:* Kang-Tsung Chang, Karen S. Humes, Piotr Jankowski, Harley E. Johansen, Allan Jokisaari, Gundars Rudzitis, Sam M. W. Scripter, Hengchun Ye. *Affiliate Faculty:* David H. Levinson, Scott R. Morris.

Geography explores the distribution and interaction of natural and human systems on global, regional, and local scales. Environmental issues involving natural resources, population, political, and economic systems are the subject of much geographic inquiry, along with practical issues in planning and resource management. Selecting locations, or designing optimal development or delivery systems are geographic problems common to business and government around the world. Geographic training in geographic information systems (GIS), remote sensing, spatial analysis, and cartography, along with knowledge of patterns and processes inherent in natural and human social systems provides the background necessary to work in the expanding fields of GIS applications and scientific or applied geography.

To prepare students for many rewarding and important career opportunities, the Department of Geography, in the College of Mines and Earth Resources, offers the following undergraduate degree programs: B.S. Geography with options in physical environment and earth resources, mineral property and land management, applied economic geography, and generalist; and B.S. Cartography with options in cartography and GIS. The department also offers the major in geography (leading to the B.A. or B.S. degree) through the College of Letters and Science.

Recent shifts in personnel have strengthened the department's programs in GIS, climatology, and economic geography. The department also has a fast expanding remote sensing program, with addition of new faculty, and a new remote sensing lab.

The department has over 65 undergraduate and 25 graduate majors. Students benefit from close contact with their instructors and hands-on experience with their course work and through internships with industries and agencies involved in geographic and cartographic activities.

Graduate Programs. M.S. and Ph.D. degrees in geography are offered. Geography graduate programs provide training in research methods and applications of theory and spatial modeling to problems in regional development, cartography, and the physical environment. Students learn problem definition, research design, and data analysis using a variety of techniques including GIS, remote sensing, spatial analysis, and computer assisted cartography. Students without an undergraduate degree in geography are usually required to complete some undergraduate courses in the department to provide adequate background.

Career Opportunities. Geography and GIS applications continue to be one of the fast-growing job markets world wide. Most jobs today involve the use and adaptation of geographic information systems in both the public and private sectors. Geographers also work in industry using their skills in research, locational analysis, site selection, mapping, and management of geographical information, with the aid of computers. Industrial jobs for geographers range from research, planning, and data management in primary resources to deciding where to locate a new supermarket or shopping mall. Many jobs for geographers involve computer mapping or GIS. Cartographers from our program are employed in a variety of positions working with map design, graphics, and production cartography. We have recently designed a program leading to GIS analyst positions, available under the B.S. Cartography. The department arranges student internships with industries and agencies to provide on-the-job training and maintains a close relationship with the UI Career Services Center to aid students in their search for employment.

Faculty members in the department will answer questions about specific programs and courses. Prospective majors in geography or cartography should contact the department head (telephone 208/885-6216), or visit the department's web site at www.mines.uidaho.edu/geography.

Courses

See part 6 for courses in Geography (Geog).

Undergraduate Curricular Requirements

GEOGRAPHY (B.S.Geog.)

This program is offered through the College of Mines and Earth Resources. Required course work includes the university requirements (see regulation J-3) and:

Geog 100 Physical Geography 4
Geog 180 Spatial Graphics 3
Geog 200 World Regional Geography 3
Geog 240 Economic Geography 3
Geog 380 Cartography & Graphic Communication 3
Geog 385 GIS Primer 3
Stat 251 Principles of Statistics 3
Stat 401 Statistical Analysis 3

And completion of one of the following options (a list of recommended electives may be obtained from the departmental office; students interested in pursuing graduate studies are advised to emphasize analytical techniques in their choice of electives):

A. PHYSICAL ENVIRONMENT AND EARTH RESOURCES OPTION

This option emphasizes the interaction between natural environmental systems and human activities. Students gain a knowledge of major issues in the utilization and management of earth resources as they relate to the natural environment. They also acquire the skills necessary to solve practical problems related to resource development.

Geog 301 Meteorology or 401 Climatology 3
Geog 315 Geomorphology or 325 Quantitative Geomorphology 3
Geog 483 Remote Sensing/GIS Integration 3
Geog 491 Field Techniques 3
Engl 317 Technical & Engineering Report Writing 3
Courses chosen from the following 21
- Geog 427 Decision-Making in Resource Management
- Geog 444 Environmental Assessment
- Geog 470 Computer Mapping
- Geog 475 Geographic Information Systems
- Geog 484 Intermediate Digital Image Processing
- Chem 101 Intro to Chem I or 111 Principles of Chem I
- CE 211 Engr Measurements or 218 Elementary Surveying
- CS 112 Intro to Problem Solving & Programming
- For 375 Airphoto Interpretation & Mapping
- Math 143 Pre-calculus Algebra & Analytic Geometry
- Math 160 Survey of Calculus
- Phys 111 General Physics I

Courses chosen from the following 9
- Geog 301 Meteorology or 401 Climatology
- Geog 316 Processes in Glacial/Periglacial Environments
- Geog 364 Idaho & the Pacific Northwest
- AgE 351 Hydrology
- For 462 Watershed Management
- Geol 101 Physical Geology
- Geol 309 Groundwater
- Geol 360 Geologic Hazards
- Geol 361 Geology & the Environment
- Soil 205 General Soils

Electives to total 128 cr for the degree ..... —

B. APPLIED ECONOMIC GEOGRAPHY OPTION

This option is designed to prepare students for employment opportunities in business and industry and also in the field of planning at the regional or community scale. It emphasizes the locational aspects of economic activity and economic decision making. Students will gain an understanding of geographical patterns of markets, transactions and trade, transportation, production and consumption, industrial processing, and other aspects of the spatial economy. With this option, most students can go on to complete master's degrees in business administration or geography within one year or move directly into a growing area of employment for the business-oriented geographer.

Geog 165 Human Geography 3
Geog 330 Urban Geography 3
Geog 340 Business Location Decisions 3
Geog 346 Transportation 3
Geog 427 Decision-Making in Resource Management 3
Bus 321 Marketing 3
Econ 201, 202 Principles of Economics 6
Econ 430 Regional/Urban Economics 3
Engl 313 Business Writing or 317 Tech & Engr Report Writing 3
Courses chosen from the following 9
- Geog 378 Interactive Cartography
- Geog 470 Computer Mapping
- Geog 497 Practicum (internship with a company or agency)
- Bus 421 Marketing Research & Analysis
- Econ 352 Intermediate Microeconomic Analysis
- LArc 490 Computer-Aided Regional Landscape Planning
- Math 170 Analytic Geometry & Calculus I
- Math 326 Linear Programming

Courses chosen from the following 9
- Geog 360 Population Dynamics & Distribution
- Geog 365 Political Geography
- AgEc 332 Economics of Agricultural Development
- AgEc 451 Land & Natural Resource Economics
- Bus 425 Retail Distribution Management
- Econ 385 Environmental Economics
- Econ 415 Market Structure & Governmental Policy
- Econ 446 International Economics

Electives to total 128 cr for the degree ..... —

C. MINERAL PROPERTY AND LAND MANAGEMENT OPTION

This option is designed to provide a background in land-use decision making and land management. Emphasis is on mineral properties, but the techniques also apply to other resources. Courses include locational, socioeconomic, environmental, and legal aspects of land management to prepare the student for either employment or advanced study in this growing profession.

Geog 315 Geomorphology or 301 Meteorology or 401 Climatology 3
Geog 330 Urban Geography or 346 Transportation or 360 Population Dynamics 3
Geog 420 Land & Resource Regulation or 425 Mineral Land Mgt 3
Geog 470 Computer Mapping or 378 Interactive Cartography 3
Geog 492 Mineral Industry Case Studies 3
AgEc 451 Land & Natural Resource Economics or Econ 430 Regional/Urban Economics or Econ 385 Environmental Economics 3
Bus 362 Real Property Appraisal 3

CE 218 Elementary Surveying 2
CS 112 Introduction to Problem Solving & Programming 3
Econ 201, 202 Principles of Economics 6
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
PolS 451 Public Administration or 452 Administrative Law & Regulation 3
Approved geography electives 12
Electives to total 128 cr for the degree ..... —

D. GENERAL OPTION

For students interested in geography but not in one of the specialty options, this option allows them to design their own curricula with the approval of a geography faculty adviser.

Math 143 Pre-calculus Algebra & Analytic Geometry 3
Approved electives in geography (not incl Geog 280, 480) 27
Approved electives to total 128 cr for the degree ..... —

GEOGRAPHY (B.A. or B.S.)

This program is offered through the College of Letters and Science. Required course work includes the university requirements (see regulation J-3), the general College of L&S requirements for either the B.A. or B.S. degree, and:

Geog 100 Physical Geography 4
Geog 165 Human Geography 3
Geog 200 World Regional Geography 3
Geog 240 Economic Geography 3
Geog 380 Cartography & Graphic Communication 3
Geog 490 Trends in Geography 3
Geol 101 Physical Geology 4
Geography electives (upper-division) 18
Related fields approved by the Dept of Geography 20

CARTOGRAPHY (B.S.Cart.)

This program is offered through the College of Mines and Earth Resources. Required course work includes the university requirements (see regulation J-3) and:

Geog 100 Physical Geography 4
Geog 180 Spatial Graphics 3
Geog 200 World Regional Geography 3
Geog 280 Cartographic Production Techniques 4
Geog 378 Interactive Cartography 3
Geog 380 Cartography & Graphic Communication 3
Geog 385 GIS Primer 3
Geog 470 Computer Mapping 3
Geog 475 Geographic Information Systems 3
Geog 483 Remote Sensing/GIS Integration 3
Geog 497 Practicum 3-6
CE 211 Engineering Measurements or 218 Elementary Surveying 2-4
CS 112 Intro to Problem Solving & Programming 3
Engr 105 Engineering Graphics 2
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
For 375 Airphoto Interpretation & Mapping 3
For 472 Remote Sensing of Environment 3
Math 143 Pre-calculus Algebra & Analytic Geometry 3
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
Stat 251 Principles of Statistics 3
Stat 401 Statistical Analysis 3
And one of the following options:

A. CARTOGRAPHY OPTION

This option emphasizes graphic design and communication and both computerized and conventional techniques of production cartography. It provides extensive applied professional cartographic training and exposure to theoretical-research oriented aspects of the field. Students who complete this option should be capable of eventually occupying supervisory positions in graphic sections or organizations producing maps and allied graphic products. To provide these students with a realistic education, the department has developed a modern, fully equipped graphic arts laboratory (Cart-O-Graphics) that has the capacity to execute all necessary map-making functions from original drafting or scribing to press-ready printing plates. The laboratory provides talented and interested students with the opportunity to solve real cartographic problems, gaining professional experience, academic credit, and income.

Geog 315 Geomorphology 3
Adviser-approved electives to total 128 cr for the degree ..... —

B. GIS OPTION

This option focuses on teaching theoretical fundamentals, techniques, and practical applications of modern geoprocessing using spatial analysis and information systems technology. It is intended to educate specialists in GIS and Spatial Analysis who have a solid grasp of cartographic principles, computational technology, and the knowledge of substantive issues involved in geoprocessing applications.

CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
CS 245 Computer Organization & Architecture 4
CS 360 Database Systems 3
Math 176 Discrete Mathematics 3
Adviser-approved electives to total 128 cr for the degree ..... —

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Geography. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science (Thesis Option). Scores on the Graduate Record Examination (aptitude section) are required for admission. Each student's training and research plan is developed by the student and the major professor with the advisory committee's approval. It is expected that student programs be compatible with the specialties of the departmental faculty.

Master of Science (Nonthesis Option). Scores on the Graduate Record Examination (aptitude section) are required for admission. This program is designed for individuals who wish to place less emphasis upon research in their plan of study with additional courses substituted for thesis credit, the submittal of two reviewed papers and a practical exercise, and an oral examination before the student's committee required for the degree.

Master of Arts in Teaching—Major in Geography. General M.A.T. requirements apply. A plan of study will be arranged in conference with the student's adviser upon admission to the program. Examination procedures are the same as in the nonthesis option, including submittal of two review papers and a practical exercise, and an oral examination before the student's committee.

Doctor of Philosophy. General Ph.D. requirements apply. An M.S. degree is required. Scores on the Graduate Record Examination (aptitude section) are required for admission. Admission is by faculty approval based on evaluation of the applicant's research potential. Each student's study plan is approved by the departmental faculty. If a student wishes to pass over a course based on prior training or experience, he or she will have to pass the equivalent of a final examination in the course. It is expected that the study plan will be compatible with the goals and direction of the department.

Department of Geological Sciences

John S. Oldow, Dept. Head (322 Mines Bldg. 83844-3022; phone 208/885-6192). *Faculty:* Earl H. Bennett II, John H. Bush, Jr., Valerie E. Chamberlain, Dennis J. Geist, Mickey E. Gunter, James H. Hardcastle, Peter E. Isaacson, Simon A. Kattenhorn, William C. McClelland, Leland L. Mink, John S. Oldow, James Osiensky, Kenneth F. Sprenke, Scott A. Wood. *Adjunct Faculty:* Bill Bonnichsen, Roy M. Breckenridge, Virginia Gillerman, Kurt L. Othberg, Roger C. Stewart, John A. Welhan, Barbara Cooke Williams.

Geology is the study of the origin and evolution of the earth, utilizing the principles of chemistry, physics, and biology and the unifying concepts of geologic time and uniformitarianism. The applied aspects of geology include the search for ores, industrial minerals, petroleum, coal, water, and other useful geologic materials. Hydrology is concerned with water: surface water, underground water, and water in the atmosphere. Generally included in these studies are geologic aspects of mined land reclamation, waste disposal, and pollution abatement. Geophysics is the scientific study of the earth using the methods of physics.

The bachelor's degrees is offered in geology that emphasizes field and applied aspects along with theoretical considerations. The program requires effective use of English in written and oral reports. It is the goal of the department that our graduates not only be ready for immediate employment, but also that they have the broad education that will help them to grow professionally and advance through positions of greater responsibility during their careers.

The geology program provides the student with the necessary background courses in basic sciences and mathematics plus a spectrum of courses in the subdisciplines of geology, including mineralogy, petrology, paleontology, stratigraphy, structural geology, geomorphology, geochemistry, and geophysics. A well-rounded education is obtained through additional courses in the humanities and social sciences. Specialized elective courses can be chosen to prepare for various careers such as exploration for minerals or for petroleum; or in dealing with geological problems related to engineering; or in the search for, and management of, ground water; or for preparation for advanced studies in graduate school.

A minor in geology is offered for students in allied fields who have an interest in geology. The minor curriculum can be tailored to meet the needs of individual students.

Laboratories are maintained for work in all of the basic courses, with large study collections of fossils, rocks, minerals, crystal models, ore suites, thin sections, polished sections, and topographic and geologic maps.

Equipment used in advanced courses includes rock sawing and polishing facilities, binocular microscopes, reflection and polarizing microscopes, photomicrographic apparatus, x-ray diffraction and fluorescence equipment, and an atomic absorption spectrophotometer. Also available are computers, resistivity survey equipment, gravity meters, GPS receivers, seismographs, magnetometer, soil drilling and sampling kits, water-level recorders, and various types of soil and rock strength-testing equipment.

Research laboratories are equipped for work in applied geochemistry, geophysics, petrology, economic geology, paleontology, engineering geology, hydrogeology, geochronology, tectonics, and geomechanics.

Through the Glaciological and Arctic Sciences Institute, cooperative facilities for field training and research in British Columbia and Alaska are available in the disciplines of mining and exploration geology, geophysics, and glaciology.

The department offers Master of Science degrees in geology, geophysics, and hydrology. Theses are required in the first two programs (i.e., geology and geophysics), whereas a thesis/nonthesis option is available in hydrology. A nonthesis program is also available in the Master of Arts in Teaching (major in earth science). The Doctor of Philosophy is offered in geology.

The undergraduate preparation expected of the entering candidates depends upon the degree sought. Candidates who do not have adequate preparation are admitted with the requirement that deficiencies be made up. Some of our most promising graduate students have come to us with bachelor's degrees in the humanities or social sciences. Deficiencies for master's candidates are determined by the major professor. The master's degrees in hydrology and geophysics are interdisciplinary, and candidates are accepted from various fields of science and engineering; mathematics through Math 310 is required, and other deficiencies will be determined by the major professor. No special requirements exist as to deficiencies of candidates for the Master of Arts in Teaching. Candidates for the Doctor of Philosophy in geology are expected to have earned a master's degree in geology.

BSU-ISU Cooperative Programs. The department participates in cooperative programs with the Earth Science Departments at Boise State University and at Idaho State University. Students interested in pursuing bachelor's degrees in geology or geophysics at those institutions may take transferable preparatory courses at UI. The master's degree in geophysics at UI is fully cooperative and students may take courses or perform research at any of the three institutions.

Courses

See part 6 for courses in Geology (Geol), Geophysics (Geop), and Hydrology (Hydr).

Undergraduate Curricular Requirements

GEOLOGY (B.S.Geol.)

Required course work includes the university requirements (see regulation J-3) and:

Geol 101 or 111 Physical Geology 4
Geol 102 Historical Geology 4
Geol 249 Mineralogy & Optical Mineralogy 4
Geol 301 Computer Geology 2
Geol 324 Principles of Stratigraphy & Sedimentation 4
Geol 326 Igneous & Metamorphic Petrology 4
Geol 345 Structural Geology 4
Geol 401 Field Geology & Report Writing 6
Geol 423 Principles of Geochemistry 3
Chem 111 Principles of Chemistry I 4
Chem 112 Principles of Chemistry II or 113 Inorganic Chemistry & Qualitative Analysis 4-5
Engl 317 Technical & Engineering Report Writing 3
Geop 422 Principles of General Geophysics 3

And the completion of one of the following options and electives approved by the adviser to total 128 credits for the degree.

A. GENERAL GEOLOGY OPTION

Geol 212 Principles of Paleontology 4
Geol 335 Geomorphology 3
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
Math 175 Analytic Geometry & Calculus II or Math 330 Linear Algebra or Stat 251 Principles of Statistics 3-4
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II 8
Adviser-approved electives in geology 9

B. HYDROGEOLOGY OPTION

Geol 309 Groundwater or Hydr 463 Hydrogeology 3
Geol 410 Techniques of Groundwater Study 3
Math 170, 175 Analytic Geometry & Calculus I-II 8
Stat 251 Principles of Statistics or 301 Probability & Statistics 3
Phys 211-212 Engineering Physics I-II 8
Hydrogeology electives chosen from the following, including at least 6 credits in Hydr courses 18
- AgE 351 Hydrology (3 cr)
- AgE 451 Engineering Hydrology (3 cr)
- ChE 470 Hazardous Waste Management (3 cr)
- Engr 210 Engineering Statics and 335 Engr Fluid Mechanics (6 cr)
- Geog 385 GIS Primer (3 cr)
- GeoE 428 Geostatistics (3 cr)
- Geol 478 Low Temperature Aqueous Geochemistry (3 cr)
- Hydr 412 Environmental Hydrogeology (3 cr)
- Hydr 463 Hydrogeology (3 cr)
- Hydr 468 Aquifer Test Design & Analysis (3 cr)
- Hydr 470 Groundwater Remediation (3 cr)
- Hydr 472 Groundwater Management (3 cr)
- Hydr 475 Design & Construction of Water Wells (3 cr)
- Math 275 Analytic Geometry & Calculus III (3 cr)
- Soil 205, 206 General Soils & Lab and 415 Soil Physics (7 cr)
- Soil 419 Solute Transport in Porous Media (2 cr)

C. RESOURCE EXPLORATION OPTION

Geol 212 Principles of Paleontology 4
Geol 485 Geochemical Exploration 3
GeoE 475 Mineral Deposits 4
GeoE 476 Exploration Methods 3
Geop 420 Exploration Geophysics 3
Econ 272 Foundations of Economic Analysis 4
Math 160 Survey of Calculus or 170 Analytic Geom & Calculus I 4
Math 175 Analytic Geometry & Calculus II or 330 Linear Algebra 3-4
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II 8
Stat 251 Principles of Statistics or 301 Probability & Statistics 3

D. ENVIRONMENTAL GEOLOGY OPTION

Geol 212 Principles of Paleontology 4
Geol 309 Groundwater 3
Geol 335 Geomorphology 3
Geol 360 Geologic Hazards 3
Geol 361 Geology & the Environment 3
Math 160 Survey of Calculus or 170 Analytic Geom & Calculus I 4
Math 175 Analytic Geometry & Calculus II or Math 330 Linear Algebra or Stat 251 Principles of Statistics 3-4
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II 8
Environmental geology electives chosen from the following 9
- AgE 351 Hydrology (3 cr)
- BSyE 433 Bioremediation (3 cr)
- BSyE 452 Environmental Water Quality (3 cr)
- Biol 201 Introduction to the Life Sciences (4 cr)
- Chem 275, 276 Carbon Compounds & Lab or 277, 278 Organic Chemistry I & Lab (4 cr)
- Chem 418 Environmental Chemistry (3 cr)
- Geog 385 GIS Primer (3 cr)
- Geog 401 Climatology (3 cr)
- GeoE 420 Erosion & Sediment Control (3 cr)
- Geol 410 Techniques of Groundwater Study (3 cr)
- Geol 478 Low Temperature Aqueous Geochemistry (3 cr)
- MMBB 250 General Microbiology (5 cr)
- Soil 205, 206 General Soils & Lab (4 cr)

E. GEOLOGICAL EDUCATION OPTION

Geol 212 Principles of Paleontology 4
Geol 335 Geomorphology 3
Geol 360 Geologic Hazards 3
Geol 405 Earth Sciences 3
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology or 203 General Botany 4
Geog 100 Physical Geography 4
Geog 401 Climatology 3
Math 160 Survey of Calculus or 170 Analytic Geom & Calculus I 4
Math 175 Analytic Geometry & Calculus II or Math 330 Linear Algebra or Stat 251 Principles of Statistics 3-4
Phys 103, 104 General Astronomy & Lab 4
Phys 111-112 General Physics I-II or 211-212 Engr Physics I-II 8

Academic Minor Requirements

GEOLOGY MINOR

Geol 101 Physical Geology 4
Geol 102 Historical Geology 4
Electives in geology, geophysics, or geological engineering 13

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Geological Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. All graduate students in this department are expected to attend the appropriate departmental seminar each semester.

Master of Science. General M.S. requirements apply. Majors offered under the M.S. degree are geology, geophysics, and hydrology. Prerequisites are the equivalent of an undergraduate major in the area of specialization. Deficiencies must be taken without credit toward the degree. A written thesis is required for which eight credits (of the minimum of 30 credits for the degree) are permitted. A nonthesis option is available under special conditions in hydrology.

Master of Arts in Teaching—Major in Earth Science. General M.A.T. requirements apply. A plan of study will be arranged in conference with the student's major professor and co-adviser upon admission to the program.

Doctor of Philosophy. General Ph.D. requirements apply. Admission to the doctoral program is based on the compatibility of the student's research interests with those of the major professor, upon the availability of research support, and the student's academic record and potential. Applicants are expected to have the prerequisites as specified for the M.S. degree with a major in geology. Each research program is developed by the student and the major professor with the advisory committee's approval. Up to 31 credits, depending on the research program, are permitted in research and dissertation. The departmental Ph.D. foreign language background is desirable for the Ph.D.; however, under special circumstances, a meaningful substitution may be made by petition of the student's committee to the graduate faculty of the Department of Geological Sciences.

Division of Health, Physical Education, Recreation and Dance

Calvin W. Lathen, Div. Director and Coordinator of Recreation (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921). *Faculty:* Damon D. Burton, Jess D. Caudillo, Carol Conkell, Dennis Dolny (Coordinator, Sport Science), Grace Goc Karp (Coordinator, Physical Education), Glenn Kastrinos, Michael L. Kinziger, Calvin W. Lathen, Randy M. Page (Coordinator, Health and Safety), Patricia L. Richards, Carol A. Ryan, Sharon K. Stoll (Coordinator, Graduate Program), Diane B. Walker (Coordinator, Dance), Emily Wallace, Marianne Woods (Coordinator, Basic Instruction Program).

The Division of Health, Physical Education, Recreation and Dance is one of three divisions in the College of Education. The college offers a Ph.D. in education with tracks in sport pedagogy, physical education, or other program areas in the division; the division offers master's degrees in recreation and physical education; baccalaureate degrees in dance, physical education, school and community health, recreation, and sport science; several minors and options; basic instruction in numerous activities, and leisure activities through Campus Recreation.

The activity portion of the program is supported by outstanding facilities, which include three gymnasia, two dance studios, two pools, eight indoor tennis courts, nine racquetball courts, indoor and outdoor tracks, weight rooms, fitness trail, climbing wall and rope course, and expansive field and play areas.

The baccalaureate degree in dance is designed to give the student professional training in teaching, performing, choreography, and concert production. The Festival Dance and Performing Arts Association maintains a residency program with the division.

The baccalaureate degree in physical education leads to elementary and secondary teaching certification and provides a foundation for athletic coaching. Physical education is concerned primarily with the art and science of human movement, principles and concepts relating to skill acquisition and analysis, the effects of exercise on the body, and concepts relating to total fitness.

The baccalaureate degree in recreation prepares the student for recreation leadership roles in municipalities, agencies, institutions, and private industry. Students enrolled in this program complete a recreation internship. Recreation students may specialize by completing a university-approved academic minor.

The baccalaureate degree in school and community health education leads to teaching certification in grades 6-12 and provides a foundation for health education teaching in schools. Health education is concerned with providing individuals with learning experiences designed to predispose, enable, and reinforce voluntary adaptations of behavior conducive to well-being. In addition to school health education, this degree emphasizes community health and may lead to employment possibilities within hospitals, health departments, governmental agencies, volunteer agencies, and business/industry.

The baccalaureate degree in sport science prepares students to work in the general areas of sport, and corporate, clinical, or private wellness programming. It is for students interested in professional opportunities that do not require teacher certification. An internship at a corporate, clinical, or sport facility is included.

Academic and teaching minors offered by the division include: health education, dance, recreation, recreational therapy, outdoor recreation leadership, tourism and leisure enterprises, elementary physical education, secondary physical education, sport science, coaching, athletic training, and sport ethics.

Graduate work includes master's degrees in physical education and recreation and a doctorate in education with specialization tracks in the HPERD areas. Majors seeking a master's degree in physical education may concentrate in one of five areas of specialization: sport pedagogy, dance pedagogy, sport science, health and wellness, or sport psychology. The master's degree in recreation is limited to sport and recreation management. Ph.D. study is available in selected HPERD program areas.

A 2.8 undergraduate grade-point average is required for admission. Doctoral admission requirements include the GRE and can be obtained from the College of Education.

Courses

See part 6 for courses in Dance (Dan), Health and Safety (H&S), Physical Education (PE), and Recreation (Rec).

Undergraduate Curricular Requirements

DANCE (B.S.Dan.)

The curriculum leading to the degree of Bachelor of Science in Dance is designed to give the student professional training in teaching, performing, choreography, and concert production.

Required course work includes the university requirements (see regulation J-3) and:

- Dan 216/416 Technique (must include a minimum of 6 semesters each of ballet, modern, and jazz and 8 credits of 416) 24-32
- Dan 112 Recreational Dance Forms 2
- Dan 210 Dance Theatre (4 semesters) 8
- Dan 220 Children's Dance 2
- Dan 320 Labanotation 3
- Dan 321 Dance Pedagogy 3
- Dan 325 Dance Production 3
- Dan 383 Dance Composition (6 semesters) 6
- Dan 410 Pre-professional Dance Theatre (4 semesters) 8
- Dan 420 Dance Accompaniment 3
- Dan 421 Dance History 3
- Dan 490 Senior Project 3
- ED 312 Educational Psychology 2
- MusH 101 Survey of Music 3
- PEP 300 Human Kinesiology 2
- PEP 360 Motor Development & Control 3
- PEP 418 Physiology of Exercise 3
- TheA 105 Basics of Performance 3
- TheA 205 Lighting Design I 3
- TheA 320 Theatre Management 2
- Two of the following courses 2
  - MusA 114 Individual Instruction (voice or piano)
  - MusA 145-146 Piano Class
  - MusA 147-148 Voice Class
  - MusA 149-150 Voice for Actors

Dance majors planning to qualify for the Standard Secondary-School Teaching Certificate must include college requirements and the following courses among the electives to complete the 128 credits for the degree and should elect ED 312, Educational Psychology, above:

- Dan 433 Practicum: Dance Teaching 14
- ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
- ED 313 Educational Measurement 1
- ED 314 Strategies for Teaching 2-3
- ED 328 Introduction to Educational Techology 2
- ED 445 Proseminar in Teaching 3
- ED 468 Historical & Philosophical Foundations of Education 3
- EDTE 463 Literacy Methods for Content Learning 3

PHYSICAL EDUCATION (B.S.Ed.)

The major in physical education leads to certification in grades 1-12. This requires 14 credits of student teaching. H&S 288 or Current Emergency Response and CPR Certification required for graduation.

Required course work includes the university requirements (see regulation J-3), general College of Education requirements, and:

- PEB 108 Swimming or Swimming Certification 1
- PEP 124 Survey of Outdoor Pursuits I 1
- PEP 160 Foundations of Physical Education & Education 3
- PEP 201 Fitness Activities & Concepts 2
- PEP 202 Skill & Analysis: Stunts & Tumbling 1
- PEP 300 Human Kinesiology 2
- PEP 305 Applied Sports Psych or PEP 310 Cultural & Phil Aspects of Sport 2-3
- PEP 360 Motor Development & Control 3
- PEP 380 Measurement & Evaluation I 2
- PEP 410 Elementary Physical Education Methods 3
- PEP 414 Proseminar in Physical Education 1
- PEP 418 Physiology of Exercise 3
- PEP 420 Secondary Physical Education Methods 4
- PEP 424 Physical Education for Special Populations 2
- PEP 440 Physical Education & Sport Management 3
- Dan 112 Recreational Dance Forms 2
- H&S 150 Wellness Lifestyles 3
- Zool 120 Human Anatomy 4
- Zool 121 Human Physiology 4
- Skill & Analysis courses: select 6 courses from Dan 105 (incl social swing, modern, tap, ballet, jazz, or square), PEP 112, 113, 114, 115, 116, 117, 118, 119, 122 6
- Survey courses: select 2 courses from PEP 123, 125, 243 2-3

And the satisfactory completion of an approved teaching minor.

NOTE: Students who complete a teaching major in a second field may have the above list of requirements reduced to 30 credits with the approval of the division.

A single-subject 60-credit major in physical education includes the above courses and an approved physical education concentration. See the division office for information on concentrations.

RECREATION (B.S.Rec.)

This curriculum is primarily for students interested in careers in leadership, supervision, or management of recreation agencies. Students graduating from this program are immediately eligible to sit for the national-level examination to become a Certified Leisure Professional and thereby acquire this valuable credential for professional advancement.

A minimum cumulative university GPA of 2.25 is required of all recreation majors who seek to take upper-division courses (numbered 300 or above) offered by the Recreation Program Unit. Recreation majors must also achieve a minimum cumulative university GPA of 2.25 to graduate with a B.S.Rec. degree.

Required course work includes the recreation major, the university requirements (see regulation J-3), division requirements (contact the division office), and completion of an academic minor or 20 credits in an approved cognate area of study. Note: Students should contact adviser before registering for courses to satisfy regulation J-3.

- BuEd 415 Microcomputer Applications or ASM 240 Computer Applications in Biological Systems or other approved computer course 3
- BLaw 265 Legal Environment of Business 3
- Engl 207 Persuasive Writing or 208 Personal & Exploratory Writing or 209 Inquiry-Based Writing or 313 Business Writing or 317 Technical & Engineering Report Writing 3
- H&S 288 First Aid: Emergency Response or current emergency responder certification 2
- Psyc 305 Developmental Psychology 3
- Four courses (only two may be B.I.P. courses—PEB 105, 106, 107) selected from PEB 105, 106, 107, PEP 112, 113, 114, 115, 116, 117, 118, 119, 201, or 202 4-5
- Aquatic course (Lifeguarding/WSI recommended) 1
- Electives to total 128 cr for the degree ..... —

Recreation Core:

- Rec 102 Introduction to Recreation Professions 1
- Rec 110 Recreation for People with Disabilities or 230 Principles of Recreational Therapy 3
- Rec 125 Outdoor Leisure Pursuits 2
- Rec 260 Leisure & Society 3
- Rec 275 Computer Applications in Leisure Services 2
- Rec 280 Recreation Practicum 1
- Rec 329 Leadership in Recreation 3
- Rec 349 Municipal Park Admin & Maintenance or Rec 340 Leisure & Tourism Enterprises or Rec 330 Recreational Therapy Programming for People with Disabilities 2-3
- Rec 365 Leisure & the Aging Process 3
- Rec 410 Trends & Issues in Leisure Services 3
- Rec 425 Leisure Education 2
- Rec 445 Professional Seminar 1
- Rec 460 History & Philosophy of Recreation & Leisure 2
- Rec 486-487 Recreation Program Planning & Marketing I-II 4
- Rec 493 Management of Leisure Services 3
- Rec 495 Practicum in Tutoring 1
- Rec 498 Internship in Recreation 9
- RRT 310 Leisure Services Research & Evaluation 4
- Additional courses selected from the following 5
  - Rec 204 ST: Recreation Issues
  - Rec 254 Camp Leadership
  - Rec 340 Leisure & Tourism Enterprises (if not chosen above)
  - Rec 349 Municipal Park Admin & Maintenance (if not chosen above)
  - Rec 400 Seminar
  - Rec 403 Workshop
  - Rec 404 Special Topics
  - Rec 420 Experiential Education

SCHOOL AND COMMUNITY HEALTH EDUCATION (B.S.Ed.)

The major in school and community health education leads to certification in grades 6-12. Certification in the American Red Cross Emergency Response (or equivalent) is required for graduation.

Required course work includes the university requirements (see regulation J-3—contact the division for specific courses required in the core), general College of Education requirements that include 14 credits of student teaching (see division for details), an approved teaching minor, and:

- H&S 150 Wellness Lifestyles 3
- H&S 289 Drugs in Society 2

H&S 316 School & Community Health Services 2
H&S 323 Health Education Methods & Administration 3
H&S 350 Stress Management & Mental Health 2
H&S 355 Accident Control, Prevention, & Human Ecology 2
H&S 436 Health & Wellness Promotion 3
H&S 450 Contemporary Issues in Health 2
FCS 205 Concepts in Human Nutrition 3
PEP 418 Physiology of Exercise 3
Psyc 305 Developmental Psychology 3
Psyc 330 Human Sexuality 3
Zool 120 Human Anatomy 4
Zool 121 Human Physiology 4
Two of the following courses 5-6
- Comm 121 Media Writing
- Comm 331 Conflict Management
- FCS 240 Intimate Relationships
- FCS 305 Nutrition Related to Fitness & Sport
- FCS 334 Middle Childhood-Adolescence
- FCS 440 Contemporary Family Relationships
- FCS 448 Consumer Economic Issues
- PEP 493 Fitness Assessment & Prescription
- PolS 451 Public Administration
- Soc 230 Social Problems
- Soc 240 Introduction to Social Services
- Soc 320 Sociology of Substance Abuse

Electives to total 128 cr for the degree ..... —

A community health (nonteaching) track exists under this major. Students who elect this track must complete all requirements listed above except the general College of Education requirements, which include student teaching and an approved teaching minor. Students in this track must complete division requirements (contact the division office) and an approved academic minor or cognate area of study. Students in this track must also achieve a 2.50 or greater GPA, which is required for all College of Education B.S.Ed. degree recipients.

SPORT SCIENCE (B.S.P.E.)

This curriculum is for students interested in professional opportunities that do not require teaching certification. Graduates will be prepared to work in the general areas of sport, corporate, clinical, or private wellness programs, or enter graduate studies.

Required course work includes the university requirements (see regulation J-3), an approved 20-credit cognate area of study, 16-17 credits of other requirements of the Division of Health, Physical Education, Recreation and Dance that support the sport science major (see the division director for necessary courses in the university requirements, cognate area of study, and other division requirements), and the following.

Note: See the division director for information on which students should select courses listed as "or."

H&S 150 Wellness Lifestyles 3
H&S 289 Drugs in Society 2
H&S 350 Stress Management & Mental Health 2
H&S 436 Health & Wellness Promotion 3
PEP 100 Introduction to Sport Sciences 1
PEP 201 Fitness Activities & Concepts 2
PEP 300 Human Kinesiology 2
PEP 305 Applied Sports Psych or PEP 310 Cultural & Phil Aspects of Sport 2-3
PEP 360 Motor Development & Control 3
PEP 380 Measurement & Evaluation I 2
PEP 418 Physiology of Exercise 3
PEP 493 Fitness Assessment & Prescription or PEP 305/310 (not taken above) 2-3
PEP 495 Practicum in Tutoring 2
PEP 498 Internship in Physical Education (summer preferred) 9
Rec 330 Recreational Therapy Programming for People with Disabilities or Rec 110 Recreation for People with Disabilities 3
Rec 445 Professional Seminar 1
PE activity/skill classes (see division director for selection) 5
Electives to total 128 cr for the degree ..... —

Sport science cognate options are available in the following areas: athletic training, business, fitness/wellness, pre-physical therapy, research, and sport psychology. Consult the director of the Division of Health, Physical Education, Recreation, and Dance for specific course requirements.

Academic Minor Requirements

ATHLETIC TRAINING MINOR

Note: Chem 101 or 111 is required for students who select this minor and Zool 120 is a prerequisite to H&S 245. Only students enrolled in the UI Athletic Training Room clinical experience (approved NATA students) may enroll in H&S 465, 466, 467, 468, or 469. NATA students are not required to take H&S 349.

H&S 245 Introduction to Athletic Injuries 3
H&S 289 Drugs in Society 2
H&S 349 Advanced Athletic Injuries 3
H&S 495 Practicum in Tutoring 2
FCS 205 Concepts in Human Nutrition 3
FCS 305 Nutrition Related to Fitness & Sport 3
PEP 300 Human Kinesiology 2
PEP 418 Physiology of Exercise 3
Rec 431 Medical Terminology 2

NATA certification students must complete the following additional courses:
- H&S 466 Athletic Training Evaluation
- H&S 467 Athletic Training Rehabilitation
- H&S 468 Athletic Training Modalities
- H&S 469 Athletic Training Organization & Administration

Elective: H&S 465 Medical Aspects of Athletic Injuries

COACHING MINOR

Note: H&S 245, PEP 300, and PEP 418 have prerequisite requirements.

FCS 305 Nutrition Related to Fitness & Sport 3
H&S 245 Introduction to Athletic Injuries 3
H&S 289 Drugs in Society 2
H&S 349 Advanced Athletic Injuries 3
PEP 204 Special Topics: Coaching 4
PEP 220 Coaching Youth Sports 1
PEP 300 Human Kinesiology or PEP 418 Physiology of Exercise 2-3
PEP 305 Applied Sports Psych or PEP 310 Cultural & Phil Aspects of Sport 2-3
PEP 495 Practicum in Tutoring 1
PEP 497 Athletic Program Management or PEP 440 Phys Ed & Sport Management 3

DANCE MINOR

Dan 320 Labanotation 3
Dan 325 Dance Production 3
Dan 383 Dance Composition 2
Dan 420 Dance Accompaniment 3
Dan 421 Dance History 3
Electives in theatrical dance tech (selected from ballet, jazz, modern) 7

OUTDOOR RECREATION LEADERSHIP MINOR

Rec 125 Outdoor Leisure Pursuits or RRT 287 Professional Foundations of Resource Recreation & Tourism 2
Rec 215 River Reading & Whitewater Safety 1
Rec 320 Outdoor Recreation Leadership or 254 Camp Leadership 2-3
Rec 321 Wilderness Medicine & Evacuation or H&S 288 First Aid: Emergency Response 1-2
Rec 420 Experiential Educ or RRT 487 Field Environmental Educ 2-3
RRT 387 Environmental & Cultural Interpretation 3
RRT 490 Wilderness Management or 491 Wilderness Leadership for Personal Growth 3
Courses selected from the following 5
- PEB 106 Individual & Dual Sports: Fly Tying/Casting (1 cr)
- PEB 108 Swimming: Scuba (1 cr)
- Rec 220 Rock Climbing
- Rec 221 Mountaineering
- Rec 222 Cross Country Skiing
- Rec 223 Winter Camping
- Rec 224 Whitewater Rafting
- Rec 225 Kayaking
- Rec 226 Whitewater Canoeing
- Rec 227 Mountain Biking
- Rec 255 Backpacking & Camping Skills
- Rec/RRT 204 Approved Special Topics course
- Technical competency (contact dept)

RECREATION MINOR

Rec 102 Introduction to Recreation Professions 1
Rec 260 Leisure & Society 3
Rec 280 Recreation Practicum 1
Rec 329 Leadership in Recreation 3
Rec 460 History & Philosophy of Recreation & Leisure 2
Rec 486 Recreation Program Planning & Marketing I 2
Rec 493 Management of Leisure Services 3
Recreation electives 4

RECREATIONAL THERAPY MINOR

Note: Zool 120 and 121 are required for Recreational Therapy certification.

Psyc 311 Abnormal Psychology 3
Rec 230 Principles of Recreational Therapy 3
Rec 280 Recreation Practicum 2
Rec 341 Assessment & Evaluation in Recreational Therapy 2
Rec 342 Recreational Therapy in Psychiatric Settings 3
Rec 431 Medical Terminology 2
Rec 435 Clinical Aspects of Recreational Therapy 3
Rec 467 Recreational Therapy for People with Developmental Disabilities 3
Approved electives 2-3

SPORT ETHICS MINOR

PEP J275/J475 Moral Reasoning in Sport 2
PEP 310 Cultural & Philosophical Aspects of Sport 2
PEP 460 Competition & Social Values 3
PEP 470 Sport & Athletic Business Ethics 3
PEP 480 Seminar in Sportsmanship: Moral Development 3
PEP 499 Directed Study 1
Phil 103 Ethics 3
Phil 433 Ethical Theory 3

SPORT SCIENCE MINOR

Note: H&S 245 and PEP 418 have prerequisite requirements.

H&S 150 Wellness Lifestyles 3
H&S 245 Introduction to Athletic Injuries or 288 First Aid: Emergency Response 2-3
H&S 350 Stress Management & Mental Health 2
FCS 205 Concepts in Human Nutrition 3
FCS 305 Nutrition Related to Fitness & Sport 3
PEP 201 Fitness Activities & Concepts 2
PEP 418 Physiology of Exercise 3
PEP 495 Practicum in Tutoring (40 hrs minimum) 1

Courses selected from the following 4-6
- H&S 289 Drugs in Society (2 cr)
- H&S 436 Health & Wellness Promotion (3 cr)
- PEB 105 Dance Aerobics or Jazzercise (1 cr)
- PEB 106 Weight Training & Conditioning (1 cr)
- PEB 108 Aqua Fitness or Water Aerobics (1 cr)
- PEP 305 Applied Sports Psychology (3 cr)
- PEP 310 Cultural & Philosophical Aspects of Sport (2 cr)
- PEP 493 Fitness Assessment & Prescription (3 cr)

TOURISM AND LEISURE ENTERPRISES MINOR

Bus 321 Marketing 3
Rec/RRT 181 Introduction to Hospitality Services Industries 3
Rec 340 Leisure & Tourism Enterprises 3
Rec 382/RRT 381 Hospitality Management & Organization 3
RRT 394 Natural Resources Communication 3
One course selected from the following 2-3
- Rec 204/Rec 280 Special Topics/Practicum
- Rec 235/RRT 236 Principles of Tourism
- Rec 486 Recreation Program Planning & Marketing I
- RRT 386 Resource Recreation & Tourism Planning
- RRT 398 Internship

Graduate Degree Programs

The Graduate Record Examination is not required for admission to the master's program. However, candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Health, Physical Education, Recreation and Dance. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. The general M.S. requirements apply. Candidates are expected to have the equivalent of a major or minor in the area of concentration. The M.S. program emphasizes research, and the student presents either a written thesis, a bound professional paper, and/or a written comprehensive examination. The thesis is approved and supervised by a major professor and supervisory committee.

Master of Education. Candidates for this degree are expected to have the equivalent of a major or minor and/or to have completed the professional requirements for standard teacher certification. Any credits required for certification or to complete deficiencies will not be counted toward the degree. Of the minimum of thirty credits required, nine credits must be in approved education courses. The terminal project for the M.Ed. degree is a written comprehensive examination.

Doctor of Philosophy. The Ph.D. program is offered in education with a concentration in physical education-sport pedagogy or HPERD. Persons interested in doctoral study should apply to the College of Education. Admission requirements include: (a) a minimum grade-point average of 3.00 during the last two years of undergraduate preparation, (b) a minimum grade-point average of 3.50 at the master's degree level or its equivalent, and (c) a composite Graduate Record Examination score of 1050. Exceptions to the criteria may be made when documented by the Graduate Review Committee.

Sport pedagogy is designed for persons interested in the theoretical and applied dimensions of teaching behavior analysis, teaching styles, and learning styles and principles in physical education. HPERD is designed for persons interested in the broad area of programs offered by the division.

Department of History

Richard B. Spence, Dept. Chair (315 Admin. Bldg. 83844-3175; phone 208/885-6253). *Faculty:* Katherine G. Aiken, Dale T. Graden, Roland Hsu, Ellen E. Kittell, Carlos A. Schwantes, Richard B. Spence, William R. Swagerty, Pingchao Zhu. *Adjunct Faculty:* Rand C. Lewis. *Affiliate Faculty:* Marvin G. Slind, Merle W. Wells.

History is not the memorization of names and dates; it is the study of **human experience** in all aspects. An understanding of the past is essential to interpreting the present and envisioning the future. History is by nature **interdisciplinary** and **multi-cultural**. Each course trains the student to think, to evaluate problems, and to reach logical conclusions. Special attention is given to the development of analytical and writing skills through essay examinations and research projects.

A degree in history provides excellent preparation for careers in international business, government/military service, law, education, library science, communications/media, and tourism/recreation.

The department offers courses of study leading to the **B.A.** or the **B.S**. degree and has a staff of eight full-time professors who hold the Ph.D. degree. Currently there are **150** undergraduate history majors. **Double majors** can be arranged easily.

History faculty members also advise and participate in courses for majors in American studies, international studies, interdisciplinary studies, and Latin American studies and for minors in religious studies and women's studies.

Graduate study is offered in American, English, European (medieval through modern), and Latin American history. The degree programs include Master of Arts, Master of Arts in Teaching, and Doctor of Philosophy, for which dissertation topics are limited to the fields of the North American West, U.S. since 1877, and Europe since 1750.

Students applying for admission to graduate study in history must be approved by the majority of the history faculty. Students seeking graduate degrees in history must present recent GRE scores, an undergraduate transcript with at least a 3.00 average in all history courses and a 2.80 overall average that shows at least 12 credits earned in a foreign language. The language requirement is waived for those seeking the M.A.T.

Courses

See part 6 for courses in History (Hist).

Undergraduate Curricular Requirements

HISTORY (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Lower-division courses selected from the following 9
- Hist 101-102 History of Civilization
- Hist 111-112 Introduction to U.S. History
- Hist 180 Introduction to East Asian History
- Hist 210 Introduction to Modern Latin American History

Hist 290 The Historian's Craft 3
Upper-division history courses, including a seminar in senior year 27
Related fields 20

HISTORY (B.S.)

Note: Students expecting to study for an M.A. or Ph.D. degree in history should take the B.A. rather than the B.S. degree.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

Lower-division courses selected from the following 9
- Hist 101-102 History of Civilization
- Hist 111-112 Introduction to U.S. History
- Hist 180 Introduction to East Asian History
- Hist 210 Introduction to Modern Latin American History

Hist 290 The Historian's Craft 3
Upper-division history courses, including a seminar in senior year 27
Related fields 20
Any combination of the following 12
- Any foreign language (high-school foreign language may be substituted at the rate of 4 cr per year)
- Engl 257-258 Literature of Western Civilization
- FLEN 313 Modern French Literature in Translation
- FLEN 323-324 German Literature in Translation
- FLEN 363-364 Literature of Ancient Greece & Rome
- FLEN 393 Spanish Literature in Translation
- FLEN 394 Latin American Literature in Translation

Academic Minor Requirements

HISTORY MINOR

History courses chosen from the following* 9
- Hist 101-102 History of Civilization
- Hist 111-112 Introduction to U.S. History
- Hist 180 Introduction to East Asian History
- Hist 210 Introduction to Modern Latin American History

History courses at the 300- or 400-level (at least 3 cr in U.S., Latin American, or African history and at least 3 cr in Ancient, European, or Asian history) 9
History elective 3

*For demonstrable cause, department chair or minor adviser may allow substitution of courses numbered above 100-level.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of History. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. Detailed information about requirements and procedures related to these programs is available in printed form from the head of the department.

Master of Arts. General M.A. requirements apply. This thesis degree is offered in all fields of history for which competent staff is currently available. The work toward an M.A. degree stresses preparation for research as well as a balanced course program.

Master of Arts in Teaching—Major in History. General M.A.T. requirements apply. In addition, of the 30 credits required, nine must be in history and six in professional education courses (numbered above 500).

Doctor of Philosophy. The Ph.D. program is primarily oriented to research and writing to prepare the candidate for entry in a career in higher education. Among the requirements for the degree are the successful passage of comprehensive examinations covering two general and two specialized fields of history and a non-history related field, the demonstration of a reading knowledge of one foreign language (normally French, German, Spanish, Russian, or Italian), and the completion of a dissertation showing original research. Dissertation topics are limited to the fields of United States since 1877, North American West (U.S., Canada, and Mexico), and Modern Europe (1750-present).

Program in Interdisciplinary Studies

Kurt O. Olsson, Coordinator, Undergraduate Courses (112 Admin. Bldg. 83844-3154; phone 208/885-6426). Roger P. Wallins, Coordinator, Graduate Courses (112 Morrill Hall 83844-3017; phone 208/885-6243).

Courses

See part 6 for courses in Interdisciplinary Studies (Intr).

Undergraduate Curricular Requirements

INTERDISCIPLINARY STUDIES (B.A. or B.S.)

A student may present a curriculum not included among the ones listed elsewhere in this catalog provided the program is focused toward meeting the student's particular educational goal by combining the offerings of two or more major departments. The program normally is developed and presented during the sophomore year. It must be presented before the end of the second semester of the junior year or at the time when at least 30 credits of the proposed program remain to be taken. It must be approved by: (a) at least one faculty member from each of the participating departments of the university, one of which must be in L&S, (b) the chair of one of the L&S departments involved, and (c) the L&S Committee on Interdisciplinary Studies. University requirements (see regulation J-3) and L&S requirements for either the B.A. or B.S. degree apply. This program requires a minimum of 128 credits, of which at least 50 credits must be in courses numbered 200 or above, including a minimum of 36 credits in courses numbered 300 or above. It is recommended, however, that majors in interdisciplinary studies complete at least 50 credits in upper-division courses.

Interested students should consult the L&S dean's office for referral to the Interdisciplinary Studies Committee for further information about this program.

Interdisciplinary Academic Minors

A student may present a minor curriculum not included among the ones listed elsewhere in this catalog. The program must include at least 24 credits and be approved by: (a) at least one faculty member from each of the participating departments of the university, (b) the chair of one of the departments involved, and (c) in the case of minors that involve a department in the College of Letters and Science, the L&S Committee on Interdisciplinary Studies.

Graduate Degree Program

An undergraduate cumulative grade-point average of 3.00 or higher and a typed statement specifically describing the student's interdisciplinary proposal (including the reasons for undertaking such a program) are required for consideration for admission to the interdisciplinary studies program.

The objective of the interdisciplinary studies degree is to provide students with the opportunity to design specific programs of study of an interdisciplinary nature when the student's needs or desires do not fall within a currently prescribed program. Individual study plans draw from courses offered in two or more departments.

The interdisciplinary program has both a thesis option and a nonthesis option. A student choosing the thesis option may use up to six credits of Intr 500 toward the degree.

There is no typical study plan for an interdisciplinary studies degree program. Each student seeking such a degree must, with the counsel of a major professor, develop a study plan and identify a program committee, subject to the following constraints: the program committee must have at least four members; the program committee must have at least one member from each of the principal departments or disciplines involved in the student's program and one member appointed by the vice president for research and graduate studies; at least one-half of the program committee must be members of the Graduate Faculty.

The proposed program and study plan must be unanimously approved by the student's program committee and the vice president for research and graduate studies.

The program generally is administered by the department of which the student's major professor is a member. For both the thesis and nonthesis options, there must be a comprehensive examination that evaluates the student's ability to integrate all disciplines included in the program and to respond logically to related questions of a general nature. The general university credit requirements for the M.A. and M.S. degrees apply to the interdisciplinary studies degree as well; see the College of Graduate Studies section of part 4 for the requirements applicable to all M.A. and M.S. degrees.

Procedural details for developing, receiving approval for, and carrying out an interdisciplinary degree program are available from the Graduate College.

Program in International Studies

Rand C. Lewis, Coordinator (1 Cont. Ed. Bldg. 83844-3229; phone 208/885-6527). *Faculty:* Lisa J. Carlson, Raymond Dacey, Shaikh M. Ghazanfar, Dale T. Graden, Sam H. Ham, James R. Jones, Alwyn R. Rouyer, Richard B. Spence. *Adjunct Faculty:* Michael R. Whiteman.

Courses

See part 6 for courses in International Studies (IS).

Undergraduate Curricular Requirements

INTERNATIONAL STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

Courses to include the following (no more than 15 cr at the lower-div level and no more than 12 cr from any single discipline) 48
- Anth 220 Peoples of the World
- Econ 201-202 Principles of Economics
- Econ 446 International Econ or Econ 447 Econ of Developing Countries
- Geog 200 World Regional Geography
- Hist 290 The Historian's Craft or PolS 235 Political Research Methods & Approaches or Soc 410 Methods of Social Research
- IS 400 Seminar: International Issues
- PolS 237 International Politics
- Stat 150 Intro to Statistics or 251 Principles of Statistics
- At least 9 cr from one of the following issue emphases: international relations, international economics and business, global resources and development (see courses below)
- At least 12 cr from one of the following regional emphases: Latin America, Europe, Asia-Africa (see courses below)

Demonstrated proficiency in a modern foreign language correlating with the region of emphasis and equivalent to that gained from six semesters of university study 0-22

In addition, international experience in the student's region of emphasis is required for all students in this major. The experience must extend consecutively for at least 10-12 weeks, be qualified for at least 12 credits, and include an academic project or assignment and immersion in the culture of the country. All costs associated with the international experience are the responsibility of the student. Exceptions to this requirement will be considered on a case-by-case basis and approved by the IS coordinator.

The requirement of international experience will normally be fulfilled by completing a registered credit program such as study abroad, student exchange, student teaching, or internship. In general, credits are registered on the UI campus; course work and field experience are taken abroad.

In some cases, permission may be granted to complete noncredit work experience that places the student abroad for a contracted length of time. Normally this work assignment will be completed during the degree program. In some instances, prior work experience may be accepted based on the following criteria: verification, length, nature, recentness, and relevancy of experience.

ISSUE EMPHASES IN INTERNATIONAL STUDIES

A. International Relations
- Geog 365 Political Geography (3 cr)
- Hist 429-430 U.S. Diplomatic History (3 cr each)
- Hist 458 Military History (3 cr)
- Phil 436 Philosophy of War & Peace (3 cr)
- PolS 237 International Politics (3 cr) (reqd for major)
- PolS 382 Post-Communist Politics (3 cr)
- PolS 438 Conduct of American Foreign Policy (3 cr)
- PolS 440 International Organizations and International Law (3 cr)
- PolS 449 World Politics and War (3 cr)
- PolS 487 Political Violence and Revolution (3 cr)

B. International Economics and Business
- AgEc 332 Economics of Agricultural Development (3 cr)
- Bus 380 International Business (3 cr)
- Bus 481 International Finance (3 cr)
- Bus 482 International Marketing (3 cr)
- Econ 390 Comparative Economic Systems (3 cr)
- Econ 446 International Economics (3 cr)
- Econ 447 Economics of Developing Countries (3 cr)

C. Global Resources and Development
- AgEc 332 Economics of Agricultural Development (3 cr)
- Anth 462 Human Issues in International Development (3 cr)
- For/RRT 235 Society & Natural Resources (3 cr)
- For 420 Tropical Dendrology/Ecology (3 cr)
- For 495 International Wildland Management (1-3 cr, max 3)
- Geog 350 Geography of Development (3 cr)
- Geog 360 Population Dynamics and Distribution (3 cr)
- PolS 480 Politics of Development (3 cr)
- Rnge 358 Natural Resources of the World (3 cr)
- Rnge 458 Agroforestry (3 cr)
- RRT 492 International Land Preservation Systems (3 cr)
- RRT 493 International Issues in Nature Conservation (3 cr)

REGIONAL EMPHASES IN INTERNATIONAL STUDIES

A. Latin America
- FLEN 391/Span 307 Hispanic Film (3 cr)
- FLEN 394 Latin American Literature in Translation (3 cr)
- Hist 435 Latin America: The Colonial Era (3 cr)
- Hist 438 Modern Mexico (3 cr)
- Hist 439 Modern Latin America (3 cr)
- Hist 440 Social Revolution in Latin America (3 cr)
- PolS 482 Latin American Politics (3 cr)
- Span 306 Culture & Institutions of Latin America (3 cr)
- Span 407 Survey of Early Spanish American Literature (3 cr)
- Span 408 Survey of Modern Spanish American Literature (3 cr)
- Span 487-488 Contemporary Spanish-American Literature (3 cr)

B. Europe
- Engl 342 Survey of British Literature (3 cr)
- FLEN 313 Modern French Literature in Translation (3 cr)
- FLEN 323-324 German Literature in Translation (3 cr each)
- FLEN 393 Spanish Literature in Translation (3 cr)
- Fren 304 Connecting French Language & Culture (4 cr)
- Fren 305 Reading French Texts (3 cr)
- Fren 407 Topics in French Literature (3 cr)
- Fren 408 Topics in French Culture & Institutions (3 cr)
- Fren 416 French Business (3 cr)
- Germ 325-326 German Culture and Institutions (3 cr each)
- Germ 327-328 Survey of German Literature (3 cr)
- Germ 420 Readings in German Literature (3 cr)
- Hist 447 The Age of the Renaissance and the Reformation (3 cr)
- Hist 451 Age of the French Revolution (3 cr)
- Hist 452 19th Century Europe (3 cr)
- Hist 455 20th Century Europe (3 cr)
- Hist 466 Eastern Europe Since 1774 (3 cr)

Hist 467 Russia to 1894 (3 cr)
Hist 468 Russia and Soviet Union Since 1894 (3 cr)
Hist 469 Modern France (3 cr)
Hist 470 Germany and Central Europe Since 1815 (3 cr)
PolS 381 Western European Politics (3 cr)
Span 305 Culture & Institutions of Spain or 306 Culture & Institutions of Latin America (3 cr)
Span 401 Survey of Early Spanish Literature (3 cr)
Span 402 Survey of Modern Spanish Literature (3 cr)

C. Asia-Africa
Anth 426 Anthropology of China (3 cr)
Hist 457 History of the Middle East (3 cr)
Hist 482 Japan, 1600 to Present (3 cr)
Hist 483 Traditional Chinese Civilization (3 cr)
Hist 484 Modern China, 1840s to Present (3 cr)
Phil 306 Hindu Thought (3 cr)
Phil 307 Buddhism (3 cr)
Phil 308 Confucianism & Taoism (3 cr)
PolS 483 Middle Eastern Politics (3 cr)
PolS 484 Politics of India and the Subcontinent (3 cr)
PolS 485 African Politics (3 cr)

Other courses with an international component may be used as electives with permission of the program coordinator.

Academic Minor Requirements

INTERNATIONAL STUDIES MINOR

In consultation with the International Studies coordinator, students electing this academic minor submit an individual study plan emphasizing (a) international relations, (b) international economics and business, or (c) global resources and development.

1. **Basic Credit Requirements**. At least 21 credits selected from the list of courses approved by the ISC—consisting of the following:

a minimum of 6 credits chosen from Anth 220, Econ 446, Econ 447, Geog 200, IS 400, PolS 237

a minimum of 6 credits from one of the following issue emphases: international relations, international economics and business, global resources and development (see courses above)

a minimum of 6 credits from one of the following regional emphases: Latin America, Europe, Asia-Africa (see courses above)

2. **Limitations**. Of the minimum of 21 credits required, (a) not more than six may be at the lower-division level, (b) no more than nine may be in any single discipline, and (c) no more than six may be in the student's major field. No course to be counted toward the minor may be taken by directed study without prior approval by the ISC.

3. **Language Proficiency**. Demonstrated proficiency (equivalent to that required for the B.A. degree) in a modern foreign language. Students who cannot demonstrate proficiency must complete at least four credits in a modern foreign language, but these credits do not count toward the basic 18-credit requirement.

Department of Landscape Architecture

Stephen R. Drown, Dept. Chair (207 Art and Architecture 83844-2481; phone 208/885-7448; larch@uidaho.edu; http://www.uidaho.edu/larch). *Faculty:* Gary Austin, Stephen R. Drown, James J. Kuska, Toru Otawa. *Adjunct Faculty:* Elizabeth J. Fox. *Affiliate Faculty:* Donald H. Brigham.

Landscape architecture is an environmental design and planning profession. It is the art and science of integrating human activities with the natural and urban environment. The profession's objective is to minimize the impact of humans on the natural processes while providing for their physical and psychological needs through design.

As a profession, landscape architecture encompasses certain design skills that enable it to resolve conflicts that arise in the complex interrelationships of physical, economic, political, and social activities of people and their use of the environment. This requires an understanding of the natural systems and visual pattern of the land, necessitating courses in the natural sciences, such as biology, geology, and soils. In order to understand the nature of the physical, psychological, and social characteristics of mankind, studies in the behavioral and social sciences are extremely important in adapting development to the land. Technical knowledge about site modification is gained through courses in civil engineering and site engineering (landscape construction). This knowledge is balanced with studies in the visual arts to address the needs of people for an aesthetic environment.

The landscape architect's unique expertise lies in the development of a systematic and analytical approach to solving land-use problems. The foundation of the Landscape Architecture Department has been a strong emphasis on this "design process" as a methodology for solving various planning and design problems. The types of projects encountered within the program simulate those in professional practice: residential developments; resource planning; environmental impact assessment; community and historic preservation planning; industrial, institutional, and commercial planning; transportation and utility planning; landscape restoration and reclamation; aesthetic and visual resource management; river and shoreline planning; parks and recreation planning; site energy planning; and computer aided land planning.

The faculty members and students in the program have access to powerful geographic information systems, visual simulation and CADD computer programs, and an interactive video system that makes this one of the leading departments in landscape architecture in terms of computing capabilities. The faculty members have agreed to use the computer in some way in each landscape architecture course they teach, assuring that students will be computer literate upon graduation.

Landscape architecture students are required to take part in two major field trips at their own expense as partial fulfillment of the program requirements. In addition, one-day or overnight trips are a common occurrence as part of individual classes.

The Department of Landscape Architecture is housed with the interrelated professions of art, architecture, and interior architecture in the College of Art and Architecture. The department offers a professional four-year program leading to the degree of Bachelor of Landscape Architecture. The department's program is fully accredited by the American Society of Landscape Architects.

Courses

See part 6 for courses in Landscape Architecture (LArc). See the section on "Fees and Expenses" in Part 2 for the architecture dedicated fee.

Undergraduate Curricular Requirements

LANDSCAPE ARCHITECTURE (B.L.Arch.)

A place in the program at the sophomore level and above will be restricted by Landscape Architecture Accreditation Board guidelines for faculty-student ratios, availability of space, and student GPA. Entry decisions for transfer students from within the university and other institutions will be based on GPA (typically 2.5 or above) and ACT or SAT test scores. Students transferring from other landscape architecture programs or landscape design programs may also be required to submit a portfolio in order to determine their placement in the curriculum.

Note: A "C" or better in all landscape architecture courses must be maintained for a student to remain in good standing in the department. At no time may a student advance in the design and construction studio series (LArc 259, 260, 270, 359, 360, 371, 459, 460) if he or she has received less than a "C" in design for more than one semester. A grade of "C" or better is required in all landscape architecture courses, with the exception of no more than one studio, for a student to graduate from the program.

On registering for a course offered in the department, the student agrees that the department may retain work completed by the student for display, instruction, and accreditation purposes.

Required course work includes the university requirements (see regulation J-3) and:

LArc 155, 156 Introduction to Landscape Architecture I-II 2
LArc 210 Computer Applications in Landscape Architecture 2
LArc 212 Irrigation Workshop 2
LArc 247 Landscape Graphics 3
LArc 259-260 Landscape Architecture I 12
LArc 270, 371 Landscape Construction I-II 8
LArc 288, 289 Plant Materials I-II 7
LArc 358 Professional Office Practice, LA 2
LArc 359-360 Landscape Architecture II 12
LArc 385 GIS Primer 3
LArc 389 History of Landscape Architecture 3
LArc 459-460 Landscape Architecture III 12
LArc 480 Issues for the Emerging Landscape 3
Arch 483 Urban Theory & Issues 3
Art 100 Visual Art 3
Art 111 Drawing I 3
Art 121 Visual Communication & the Design Process 3
Biol 100 Introduction to Biology 4
Biol 331 General Ecology or For/Rnge/WLF 221 Natural Resources Ecology 3
CE 218 Elementary Surveying 2
Geol 101 Physical Geology 4
Math 143 Pre-calculus Algebra & Analytic Geometry or Math 137 Algebra with Applications 3
Soil 205 General Soils 3
Electives to total 133 cr for the degree, of which at least 6 cr must be from psychology and sociology ..... —
Recommended elective:
Arch 284 Computer-Aided Design
Arch 374 Computer Applications in Architecture
Geol 335 Geomorphology
LArc 490 Computer-Aided Regional Landscape Planning

Academic Minor Requirements

LANDSCAPE ARCHITECTURE MINOR

LArc 155 Introduction to Landscape Architecture I 1
LArc 389 History of Landscape Architecture 3
LArc 480 Issues for the Emerging Landscape 3
Courses chosen from the following 11
LArc 156 Intro to Landscape Architecture II (1 cr)
LArc 210 Computer Applications in Landscape Architecture (2 cr)
LArc 247 Landscape Graphics (3 cr)
LArc 259 Landscape Architecture I (6 cr) (with instructor's perm)
LArc 270 Landscape Construction I (4 cr)
LArc 288 Plant Materials I (3 cr)
LArc 289 Plant Materials II (4 cr)
LArc 371 Landscape Construction II (4 cr)
LArc 385 GIS Primer (3 cr)
LArc 490 Computer-Aided Regional Landscape Planning (3 cr)

Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Landscape Architecture. See the College of Graduate Studies section of part 4 for the general requirements applicable to the degree.

Master of Science. The Department of Landscape Architecture offers the M.S. degree with a major in landscape architecture in collaboration with the Department of Horticulture and Landscape Architecture at Washington State University at Pullman and the Interdisciplinary Design Institute (IDI) at Washington State University at Spokane. Students may enroll at any one of the three locations and take advantage of the faculty, facilities, and other resources offered at the other two. Graduate-level courses are cross listed and, where appropriate, offered electronically.

The two-year course of study requires a minimum of 40 credits with at least 24 credits in landscape architecture. Information on specialization tracks can be obtained from the department.

Program in Latin American Studies

Dale T. Graden, Coordinator (305-A Admin. Bldg. 83844-3175; phone 208/885-8956; graden@uidaho.edu). ***Faculty:*** **Judith A. Baker, Dale T. Graden, Sam H. Ham, Franklin J. Inojosa, Peter E. Isaacson, Irina Kappler-Crookston, Richard M. Keenan, William J. McLaughlin, Michael W. Moody, Laura Putsche, Margaret Van Epp Salazar, Mary H. Voxman, Dennis D. West.**

The program in Latin American studies is a multidisciplinary major leading to the B.A. degree. The appeal of this field of study has greatly increased over the last decade, due to the region's growing economic and political importance. A degree in the major is appropriate for employment in many fields, among which are the diplomatic service and overseas business as well as graduate study in various disciplines. Students electing the major will also broaden their awareness of non-Western cultures and history.

Undergraduate Curricular Requirements

LATIN-AMERICAN STUDIES (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, including Spanish for the foreign language requirement, and:

Hist 435 Latin America: The Colonial Era 3
Hist 438 Modern Mexico or 439 Modern Latin America 3
Span 306 Culture & Institutions of Latin America 3
Span 401-402 Survey of Early and Modern Spanish Literature or
487-488 Contemporary Spanish-American Literature 6
And at least seven of the following courses (or the optional
courses listed above) 21
Anth 220 Peoples of the World
Anth 462 Human Issues in International Development
*Econ 447 Economics of Developing Countries
FLEN 391 or Span 307 Hispanic Film
FLEN 394 Latin American Literature in Translation
Hist 210 Introduction to Modern Latin American History
Hist 440 Social Revolution in Latin America
Hist 441 Comparative Slavery & Emancipation in the Atlantic World
*PolS 482 Latin American Politics
RRT 493 International Issues in Nature Conservation
Span 402 Survey of Modern Spanish Literature
Span 404 Special Topics (with prior approval of program coordinator)

*Students are strongly urged to elect those courses marked with an asterisk and to take Hist 101-102 (History of Civilization) in their freshman year.

Martin Institute for Peace Studies and Conflict Resolution

Richard A. Slaughter, Director (1 Cont. Educ. Bldg 83844-3229; phone 208/885-6527).

The Martin Institute for Peace Studies and Conflict Resolution is an interdisciplinary research, teaching, and service center at the University of Idaho. It was founded for the purposes of advancing research and teaching into the causes of conflict, and providing conflict resolution services. Research is supported on global conflict and regional resource-related public policy disputes with a global parallel. The institute administers the undergraduate major in international studies and supports courses on conflict and peace. Conflict resolution services include a range of workshops, training seminars, and neutral third-party facilitation of processes related to public policy issues.

Courses

See part 6 for courses in the Martin Institute (Mrtn).

Department of Materials, Metallurgical, Mining, and Geological Engineering

Patrick R. Taylor, Dept. Head (203 McClure Hall. 83844-3024; phone 208/885-6376).

Materials and Metallurgical Engineering Faculty: **Sarit B. Bhaduri, Francis H. Froes, Yang-Ki Hong, Batric Pesic, Keith A. Prisbrey, Patrick R. Taylor, T. Alan Place.**

Mining and Geological Engineering Faculty: **Gary S. Johnson, S. J. Jung, Stanley M. Miller, Kenneth F. Sprenke, John R. Sturgul.**

Every country in the world has mineral resources that could be of benefit to its citizens. It is only upon the addition of the technological capability to convert these resources to mineral reserves, and finally into products useful to mankind, that the resources have value. Second only to agricultural resources are the mineral resources. Our modern world is a result of the technological utilization of these mineral resources. The advancement, or even continuation, of our present standard of living is dependent upon this technology.

Geological engineering is the professional discipline that relies on the use of geologic conditions and implications for (1) the design and construction of civil and mining projects, (2) the evaluation and mitigation of natural and human-caused geologic hazards, and (3) the exploration and development of mineral and energy resources. The B.S. Geological Engineering program is intended to provide its students with a thorough educational experience in applied geology, in the engineering sciences, and in the integration of geologic concepts into engineering evaluation and design.

Mining engineering includes a wide variety of mining technologies and engineering sciences devoted to the extraction or separation of the various mineral products—fuels, metals, and nonmetals. Separation of these minerals from the ground requires knowledge of the adaptation of equipment, manpower, and economics, and the application of reclamation, environmental control, legal, social, and administrative talents. Mining engineering is the coordination of all engineering fields and the administrative talents employed in extracting these materials from the earth, and making them available economically.

Metallurgical and materials engineering is the technology devoted to removing the metals, nonmetals, or fuel elements from rock, and even water, and putting them in a form useful to mankind. This requires enhancement of the materials, separation of the minerals, and finally, separation of the metals and elements from the minerals and rock into pure or semi-pure form economically. Metallurgical engineering involves the use of all the sciences and academic information from other fields to provide these metals for the everyday products we use in our industries and homes. It is the technology behind the materials that makes communication, transportation, recreation, daily living, and a healthful environment possible. More recently, a worldwide effort to develop new materials, with improved properties, has been met by new courses and research emphases by the departmental faculty in the materials and processing area. Although the department emphasizes economics and technology, engineering training includes environment and safety concerns as well.

As technological and engineering fields, both metallurgical engineering and mining engineering offer a tremendous opportunity for the person who wishes to become involved in the application of our natural mineral resources to the preservation and enhancement of man. The department provides the technical training for the beginning of this understanding through all of its engineering fields.

It is the goal of the department to provide first-class training so that the engineer graduating from the department will be competitive with all other engineers with equivalent degrees in the world, will be current in the technology, will have a practical orientation, and will be a broad and understanding member of the society. Department objectives include teaching our students to: delineate and solve problems that are susceptible to engineering treatment; be sensitive to socially related technical problems; understand the ethical characteristics of the engineering profession and practice; understand the engineer's responsibility to both occupational and public health and safety; and have the ability to maintain professional competence through life-long learning.

The department has a student assessment program that is updated yearly and is available as a publication from the department. This assessment includes a compilation of information that allows prospective students and interested parties to review the ability of the department to reach these objectives. Included in the assessment program are numerical scores for various exit survey questions, data from our graduates, and summaries of other performance criteria.

History shows that the graduates from the program have been very competent citizens, able to contribute to the development of the mineral resource engineering fields, have become excellent and leading members of society, and live useful and fulfilling lives.

Laboratories for the technologies of rock mechanics, geotechnics, surveying, ventilation, and computer applications in simulation, optimization, and mine planning are available in mining and geological engineering. The laboratory facilities for metallurgical engineering include: comminution and particulate processing; transport phenomena and reactor design; hydro-, pyro- and electro-processing of materials; microstructure and physical metallurgy; and advanced materials processing (including plasma processing, mechanical alloying, combustion synthesis, and other state of the art technologies), and characterization (including TEM, SEM, TGA/DTA, etc.). These laboratories provide an understanding of the technology required to convert minerals into useful metals and products.

Faculty in all disciplines in the department have proven their qualifications by their credentials in national and international professional societies. They are well known by their publications, research, and contract work. Exposure to these faculty members provides students with a one-to-one interaction and an expertise that enables them to be truly competitive.

The program is designed to take advantage of the other excellent facilities of the university and other engineering disciplines. The program of study also includes involvement with practical aspects of professional practice by exposure to the regional industries and research groups through field trips, guest speakers, study problems, and work time during the summer, or cooperative efforts as desired. Mining construction and metallurgical operations in the Northwest are plentiful and modern.

Most students find employment in the summer or on a cooperative basis, so that they can become more intimately involved in the processes that they are studying. The total program enables the person to leave the university with confidence, either as a baccalaureate student or on the master's or doctoral level, with the capability of a truly competent professional.

The department offers the Master of Science degree in all disciplines and the doctoral degree in mining and metallurgy. These programs include a mix of theoretical and practical study most appropriate to each student. Many studies include mathematical, statistical, and computer applications to specific processes or investigations. Some students prefer to work on applied problems that are presented by industry or research establishments in the area, often with funding from outside sources. Studies may be as varied as individual effort and interests.

These studies may be financed at times by research grants, an industry sponsor, or occasionally by departmental funding. They are designed to train the individual in research methods and investigative procedures that will enhance his or her ability in industrial or research applications or in teaching at a later date. The doctoral program is directed toward breaking new ground and advancing the field to maintain the competitive technological lead enjoyed in the U.S. for so many years. The master's program generally requires 12 to 18

months beyond the baccalaureate degree and the doctoral program usually entails at least three years beyond the baccalaureate degree.

Courses

See part 6 for courses in Geological Engineering (GeoE), Metallurgical Engineering (Met), Mining Engineering (Min), and Mining Engineering-Metallurgy (MnMt).

Undergraduate Curricular Requirements

GEOLOGICAL ENGINEERING (B.S.Geol.E.)

As part of a cooperative program with Oregon State University, Oregon resident students may enroll in this program and will not be charged out-of-state tuition by UI.

Note: It is recommended that all students take the Fundamentals of Engineering Exam (FE) during the last semester of the senior year, leading to registration and licensing as a Professional Engineer.

Required course work includes the university requirements (see regulation J-3) and:

- GeoE 210 Introduction to Geological Engineering 1
- GeoE 312 Geological Engineering Materials 3
- GeoE 360 Geologic Hazards 3
- GeoE 401 Field Geology & Report Writing 6
- GeoE 407 Rock Mechanics 3
- GeoE 421 Engineering Geophysics 3
- GeoE 428 Geostatistics 3
- GeoE 435 Geological Engineering Principles 3
- GeoE 436 Geological Engineering Design 3
- GeoE 463 Hydrogeology 3
- Geol 111 Physical Geology for Science Majors 4
- Geol 324 Principles of Stratigraphy & Sedimentation 4
- Geol 345 Structural Geology 3
- One course from the following 3-4
  - GeoE 410 Techniques of Groundwater Study
  - CE 360 Fundamentals of Geotechnical Engineering
  - Min 351 Optimization of Engineering Systems
- One course from the following 3
  - GeoE 420 Erosion & Sediment Control
  - GeoE 468 Aquifer Test Design & Analysis
  - Min 410 Simulation of Engineering Systems
- Chem 111, 112 Principles of Chemistry I-II 8
- CE 211 Engineering Measurements 3
- CS 112 Intro to Problem Solving & Programming 3
- Engr 210 Engineering Statics 3
- Engr 220 Engineering Dynamics 3
- Engr 320 Engineering Thermodynamics & Heat Transfer 3
- Engr 335 Engineering Fluid Mechanics 3
- Engr 350 Engineering Mechanics of Materials 3
- Engl 317 Technical & Engineering Report Writing 3
- Math 170, 175, 275 Analytic Geometry & Calculus 11
- Math 310 Ordinary Differential Equations 3
- Min 352 Project Investment Analysis & Mgt or Engr 360 Engr Economy 3
- Phys 211, 212 Engineering Physics I-II 8
- Stat 301 Probability & Statistics 3
- Humanities and social sciences electives—must satisfy regulation J-3 and include at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite 15
- Technical electives approved by department 9

The minimum number of credits for the degree is 134, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

METALLURGICAL ENGINEERING (B.S.Met.E.)

As part of a cooperative program with Oregon State University, Oregon resident students may enroll in this program and will NOT be charged out-of-state tuition by UI.

Note: All students are encouraged to take the eight-hour FE examination the last semester of their senior year, leading to a Professional Engineering license.

Required course work includes the university requirements (see regulation J-3) and the following:

- Met 101 Intro to Metallurgy & Materials Science 1
- Met 201 Elements of Materials Science or ME 261 Engineering Materials 3
- Met 211 Metallurgical Mass & Energy Balance 3
- Met 308 Metallurgical Thermodynamics 3
- Met 309 Metallurgical Transport Phenomena 3
- Met 310 Metallurgical Reactor Design 3
- Met 313, 316 Physical Metallurgy I, II 7
- Met 341 Particulate Materials Processing 4
- Met 344 Hydroprocessing of Materials 4
- Met 405 Industrial Minerals Processing & Design 3
- Met 407 Materials Fabrication 3
- Met 415 Materials Selection & Design 3
- Met 417 Instrumental Analysis 3
- Met 442 Pyroprocessing of Materials 4
- Chem 111 Principles of Chemistry I 4
- Chem 113 Inorganic Chem & Qual Analysis or 112 Prin of Chem II 4-5
- Chem 305 Physical Chemistry 3
- CS 112 Introduction to Problem Solving & Programming 3
- Engr 105 Engineering Graphics 2
- Engr 210 Engineering Statics 3
- Engr 240 Introduction to Electrical Circuits 3
- Engr 350 Engineering Mechanics of Materials 3
- Engl 317 Technical & Engineering Report Writing 3
- Math 170, 175, 275 Analytic Geometry & Calculus 11
- Math 310 Ordinary Differential Equations 3
- Min 352 Project Investment Analysis & Management 3
- Phys 211, 212 Engineering Physics I, II 8
- Stat 301 Probability & Stat or CE 402 Applied Numerical Methods for Engineers 3
- Humanities and social science electives—must satisfy regulation J-3 and ABET criteria and include at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite 16
- Technical electives 3
- Science electives 6

The minimum number of credits for the degree is 133, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

MINING ENGINEERING (B.S.Min.E.)

As part of a cooperative program with Oregon State University, Oregon resident students may enroll in this program and will NOT be charged out-of-state tuition by UI.

Note: Approved field experience, appropriate summer employment, or an applied course in mine surveying and geologic mapping is recommended before graduation. All students are encouraged to take the eight-hour FE examination the last semester of their senior year, leading to a Professional Engineer license.

Required course work includes the university requirements (see regulation J-3) and the following:

- Min 103 Elements of Mining 3
- Min 118 Miner Safety Training 1
- Min 230 Computer Applications in Mining II 2
- Min 290 Mine Development 2
- Min 351 Optimization of Engineering Systems 3
- Min 352 Project Investment Analysis & Management 3
- Min 370 Mine Services 2
- Min 372 Mine Ventilation 3
- Min 401, 402 Rock Mechanics & Lab 5
- Min 450 Surface Mine Design 2
- Min 451 Underground Mine Design 3
- Min 452 Surface Mine Design Lab 1
- Min 454 Geologic & Mine Modeling 2
- Min 455 Resource Feasibility Studies 2
- Chem 111, 112 Principles of Chemistry I-II 8
- CE 211 Engineering Measurements 4
- Engr 105 Engineering Graphics 2
- Engr 210 Engineering Statics 3
- Engr 220 Engineering Dynamics 3
- Engr 240 Introduction to Electrical Circuits 3
- Engr 320 Engineering Thermodynamics & Heat Transfer 3
- Engr 335 Engineering Fluid Mechanics 3
- Engr 350 Engineering Mechanics of Materials 3
- Engl 317 Technical & Engineering Report Writing 3
- Geol 111 Physical Geology for Science Majors 4
- Geol 345 Structural Geology 3
- GeoE 312 Geological Engineering Materials 3
- GeoE 435 Geological Engineering Principles 3
- Math 170, 175, 275 Analytic Geometry & Calculus 11
- Math 310 Ordinary Differential Equations 3
- Met 205 Introduction to Metallurgy 3
- Phys 211, 212 Engineering Physics I, II 6
- Stat 301 Probability & Statistics 3
- Humanities and social sciences electives—must satisfy regulation J-3 and ABET criteria and include at least (1) one upper-division course that is the second course completed in that subject or (2) a course that has another humanities/social science course as a prerequisite 16
- Technical electives (approved by dept) to total 136 credits for the degree ..... -

Students who wish to graduate with a quarry emphasis (1) are not required to take Min 351, 372, 402, and 451, and (2) add the following required courses:

- Min 304 Explosives (2 cr)
- Min 405 Development of Industrial Minerals Deposits (3 cr)
- Min 410 Simulation of Engineering Systems (3 cr)

The minimum number of credits for the degree is 136, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

Academic Minor Requirements

METALLURGICAL ENGINEERING MINOR

- Met 201 Elements of Materials Science or ME 261 Engineering Materials 3
- Met 309 Metallurgical Transport Phenomena 3
- Met 310 Metallurgical Reactor Design 3
- And one of the following sets of courses:
  - Met 313, 316 Physical Metallurgy I & II 7
  - Phys 212 Engineering Physics II 3
  - or
  - Met 211 Metallurgical Mass & Energy Balance 3
  - Met 341 Particulate Materials Processing 4
  - Met 344 Hydroprocessing of Materials 4

MINING ENGINEERING MINOR

- Min 103 Elements of Mining 3
- Min 118 Miner Safety Training 1
- Min 401 Rock Mechanics 3
- Min 450 Surface Mine Design 2
- Min 452 Surface Mine Design Lab 1

Courses selected from the following 8
- Min 304 Explosives
- Min 352 Project Investment Analysis & Management
- Min 370 Mine Services
- Min 372 Mine Ventilation
- Min 451 Underground Mine Design
- Min 455 Resource Feasibility Studies
- Min 472 Mineral Industry Case Studies

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Metallurgical and Mining Engineering. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. General M.S. requirements apply. Majors are available in mining engineering, geological engineering, and metallurgical engineering. As a preparation for admission to a degree program the candidate should have the equivalent undergraduate degree or a B.S. degree in engineering with extra study in mining, metallurgy, and geology. Special programs can be developed from almost any basic degree in which deficiencies in the engineering and mining industry studies are removed by undergraduate or special studies. A thesis of 6 to 10 credits is required.

A nonthesis option in geological engineering is available, at the discretion of the adviser, for students with several years of professional experience.

Master of Science. Major in metallurgy. The M.S. (metallurgy) is a thesis or nonthesis degree at the discretion of the student's adviser, offered both on the Moscow campus and at the UI/Idaho Falls Center for Higher Education.

Doctor of Philosophy. General Ph.D. requirements apply. Applicants are expected to have the same prerequisites as specified for the Master of Science degree.

Department of Mathematics

James E. Calvert, Dept. Chair (300 Carol Ryrie Brink Hall 83844-1103; phone 208/885-6742; math@uidaho.edu; http://www.uidaho.edu/LS/Math). *Faculty:* Gail H. Adele, Arie Bialostocki, Dora Bialostocki, Larry E. Bobisud, Willy Brandal, James E. Calvert, Jr., John I. Cobb, Fuchang Gao, Paul Joyce, Stephen M. Krone, Mark J. Nielsen, Ralph J. Neuhaus, Cynthia M. Piez, William D. Royalty, Hunter S. Snevily, Kirk C. Trigsted, Mary H. Voxman, William L. Voxman, Hong Wang.

The Department of Mathematics offers a wide variety of majors and minors. In addition to the degree programs described below, many students pursue joint majors in mathematics and other disciplines that utilize mathematics. The most popular of these are mathematics/computer science and mathematics/physics. A joint major is obtained by completing the degree requirements for both majors. Minor programs are described below under "Curricular Requirements."

At the graduate level, the department offers the M.S., M.A.T., and Ph.D. in mathematics. Graduate training in mathematics prepares students for careers in teaching or research and development. Employment opportunities include universities, colleges, industries, and government agencies. The Ph.D. is generally required for teaching and research at the university level. The M.S. qualifies students to teach at junior colleges, some four year colleges, and for many positions in industry. The M.A.T. prepares students for secondary teaching and for some junior college positions. A baccalaureate degree in mathematics is generally required for admission to the graduate program; however, many students of science and technology can be admitted to the program with few undergraduate deficiencies.

The need for persons with quantitative skills is increasing dramatically as the world grows more complex. Mathematicians and statisticians have employment opportunities in business, industry, government, and teaching. Training in mathematics, with its emphasis on problem solving, analysis, and critical thinking, is excellent preparation for graduate programs in engineering, science, business, or law. In fact, persons planning careers in almost any field will find their opportunities enhanced by the study of mathematics and statistics. The programs are intended to provide students just such enhancement. It is generally the case that the person who develops his or her quantitative skills has increased ability to attack many of the complex problems of society. Advances in science, technology, the social sciences, business, industry, and government become more and more dependent on precise analysis and the extraction of information from large quantities of data. Environmental problems, for example, require careful analysis by persons (or teams of persons) with skills in mathematics, statistics, and computer science as well as in biology, geology, physics, and many other fields.

The demand for teachers of mathematics is greater now than ever before. Nearly every school district in the nation has a shortage of teachers trained in mathematics. UI offers a broadly based program leading to teacher certification, through enrollment either in the Department of Mathematics or in the College of Education and completion of a major or minor in mathematics.

Mathematics. The body of mathematical knowledge that has grown over the past 2,000 years is a magnificent human achievement, and it is growing more rapidly than ever before. The habits of systematic and creative thought developed in the study of mathematics are recognized as invaluable in most areas of human endeavor. UI's B.A. and B.S. programs in mathematics are designed to introduce the student to the excitement of mathematical ideas; they allow the maximum possible freedom to explore those areas of mathematics that the student finds most interesting.

The department has a sound program in mathematics with a proven record of preparing students for successful graduate study at the very best universities in the nation. There are sequences of courses in calculus, advanced calculus, linear algebra, differential equations, number theory, abstract algebra, topology, geometry, statistics, complex analysis, and mathematical analysis. Students of mathematics who do not go to graduate school are well prepared for industrial, governmental, or teaching jobs if they have some additional exposure to computer science, education, or one of the natural, social, or applied sciences.

Applied Mathematics. Many of the greatest achievements in mathematics were inspired by problems in the natural sciences; today mathematics has wide application in both the natural and social sciences. Applied mathematics provides a broad arena for intellectual and creative impulses of people. The B.S. in applied mathematics allows a choice of the actuarial science, computation, operations research, scientific, or statistics options. Each of these is discussed briefly below. Many students interested in applications of mathematics pursue a joint major in some other department.

Actuarial Science Option. An actuary applies mathematics and statistics to forecasting problems. Actuaries are employed by financial institutions, government, insurance companies, and international corporations. They address problems as diverse as economic fluctuations, population demographics, resource consumption, medical insurance rates, and retirement needs. Actuaries are in great demand and have many interesting career opportunities leading often to high management positions. Admission to the actuarial profession is governed by a series of examinations administered by the actuarial societies. The first two or three examinations can be taken by undergraduates, and the rest are usually taken while working in the industry. The first three examinations are given locally. Our actuarial science option, review seminars, and summer internship program with actuarial companies prepare students for these tests.

Computation Option. The advent of computers has changed nearly every aspect of society. As computation has become both more important and more feasible, it has inspired the development of several fields of study within mathematics. The computation option of the applied mathematics degree provides training in the mathematics applicable to computer science and technology. Many students pursue this option jointly with a computer science major.

Operations Research Option. This option is designed to prepare students for careers in business planning and management. The emphasis of study is on the mathematics used in modelling and analysis of real-world problems. This program is an excellent preparation for students planning to pursue an MBA degree.

Scientific Option. This option for the applied mathematics degree provides background sufficient for a career in science or technology. Completing this option jointly with a major in one of the sciences gives excellent preparation for graduate work in scientific research. Due to its flexibility in choosing courses, students from many scientific disciplines will find the option appealing.

Statistics Option. Statistics encompasses course work in designing and analyzing experiments, planning and interpreting surveys, and exploring relationships among variables observed on social, physical, and biological phenomena. The applied nature of the program allows the student to develop data analysis tools for such diverse areas as business and economics, crop and animal production, biological sciences, human behavior, education, engineering, and natural resource management. The statistics program thus serves to support major programs in other disciplines. Within the department, a statistics option is available under applied mathematics leading to a baccalaureate degree, and an M.S. degree in statistics is offered at the graduate level through the Division of Statistics.

Faculty members in the Department of Mathematics will be happy to answer questions about specific programs and courses. Such questions can also be addressed to the department chair (Brink 300; telephone 208/885-6742).

Courses

See part 6 for courses in Mathematics (Math).

Undergraduate Curricular Requirements

MATHEMATICS (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 215 Seminar in Topology of the Plane 3
Math 330 or 440 Linear Algebra 3
Math 461 Abstract Algebra 3
Math 462 Abstract Algebra or 472 Advanced Calculus 3
Math 471 Advanced Calculus 3
Math electives in courses numbered 300-440 or 450-499, at least 6 cr of which are in courses numbered above 401 12
Phys 211, 212 Engr Physics I, II, and either Phys 213 or an upper-division physics course with a Math 170 prereq (to acquaint the student with an area in which math is systematically applied; upon approval of the dept, substitution of other courses to meet this requirement may be allowed) 9

MATHEMATICS: APPLIED (B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 330 Linear Algebra 3
CS 112 Introduction to Problem Solving & Programming 3

And one of the following options:

A. STATISTICS OPTION

Math 451 Probability Theory 3
Math 452 Mathematical Statistics 3
Math 453 Stochastic Models 3
One course selected from the following 3-4
- Stat 301 Probability & Statistics (recommended)
- Stat 251 Principles of Statistics
- Stat 271 Statistical Inference & Decision Analysis

At least two courses from the following 6
- Math 426 Discrete Optimization
- Math 432 Numerical Linear Algebra
- Math 433 Numerical Analysis
- Math 440 Linear Algebra
- Math 471-472 Advanced Calculus
- Math 475 Analysis of Algorithms
- CS 113 Program Design & Algorithms

At least two courses from the following 5-6
- Stat 401 Statistical Analysis
- Stat 422 Sampling Methods
- Stat 507 Experimental Design
- Stat 510 Regression
- Stat 514 Nonparametrics
- Stat 521 Multivariate Analysis

Approved electives in fields where statistics is applied (not to be in stat courses) 6

B. COMPUTATION OPTION

Math 432 Numerical Linear Algebra or 426 Discrete Optimization 3
Math 433 Numerical Analysis 3
Math 475 Analysis of Algorithms 3
CS 113 Program Design & Algorithms 3
CS 213 Data Structures 3
At least three courses from the following, including at least one course numbered 346 or above 9
- Math 310 Ordinary Differential Equations
- Math 326 Linear Programming
- Math 346 Applied Combinatorics
- Math 376 Discrete Mathematics II
- Math 485 Theory of Computation
- Stat 301 Probability & Statistics

Two additional math courses numbered 400-440 or 450-499 6

C. SCIENTIFIC OPTION

Math 310 Ordinary Differential Equations 3
Math 480 Partial Differential Equations 3
Stat 301 Probability & Stat or Math 451 Probability Theory 3
At least two courses from the following 5-6
- Math 202 Seminar
- Math 420 Complex Variables
- Math 432 Numerical Linear Algebra
- Math 433 Numerical Analysis

Five additional math courses selected from 326, 346, or courses numbered 400-440 or 450-499 15

D. ACTUARIAL SCIENCE OPTION

Math 310 Ordinary Differential Equations 3
Math 451 Probability Theory 3
Math 452 Mathematical Statistics 3
Math 455 Applied Actuarial Science II 0
Three math courses numbered above 400, excluding Math 513-519 9
Acct 201-202 Introduction to Accounting 6
Bus 301 Financial Management 3
Bus 364 Insurance 3
At least one course selected from the following 3
- Bus 332 Quantitative Methods in Business
- Bus 401 Investments
- Bus 405 Portfolio Management
- Econ 351 Intermediate Macroeconomic Analysis
- Econ 352 Intermediate Microeconomic Analysis

Econ 201, 202 Principles of Economics 6
One course selected from the following 3-4
- Stat 301 Probability & Statistics (recommended)
- Stat 251 Principles of Statistics
- Stat 271 Statistical Inference & Decision Analysis

Stat 401 Statistical Analysis 3
One course selected from the following 3
- Stat 433 Econometrics
- Stat 510 Regression
- Stat 525 Econometrics

E. OPERATIONS RESEARCH OPTION

Math 326 Linear Programming 3
Math 346 Applied Combinatorics 3
Math 426 Discrete Optimization 3
Math 451 Probability Theory 3
Math 453 Stochastic Models 3
At least one course from the following 3
- Math 310 Ordinary Differential Equations
- Math 376 Discrete Mathematics II
- Math 452 Mathematical Statistics
- Stat 401 Statistical Analysis
- Any other 400-level math course except those numbered 441-449

Acct 202 Introduction to Managerial Accounting 3
Bus 370 Production/Operations Management 3
Stat 271 Statistical Inference & Decision Analysis or 301 Probability & Statistics 3-4
Four of the following courses (two must be above 400) 12
- Econ 453/Stat 433 Econometrics
- Bus 332 Quantitative Methods in Business
- Bus 350 Management Information Systems
- Bus 355 Systems Analysis & Design
- Bus 378 Project Management
- Bus 437 Statistics for Business Decisions
- Bus 439 Systems & Simulation
- Bus 456 Quality Management
- Bus 472 Operations Planning & Scheduling

Academic Minor Requirements

MATHEMATICS MINOR

Math 170, 175 Analytic Geometry & Calculus 8
Six math courses chosen from Math 275, Stat 301, and math courses numbered 300-440 or 450-499 18

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Mathematics. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science in Mathematics. General M.S. requirements apply. A prerequisite is the equivalent of an undergraduate major in mathematics. Of the minimum of 30 credits required for this degree, at least 24 must be in mathematics. A thesis is not required, but a comprehensive written examination covering the course work (and possibly other fundamentals of mathematics) is required.

Master of Arts in Teaching. General M.A.T. requirements apply. Under advisement of the major professor and committee, a broadly based study plan is designed taking into consideration the candidate's interests and teaching needs. The plan should include mathematics courses from several pure mathematics areas, for example, algebra, topology, analysis, geometry, and number theory. A three-hour written examination is given over the courses in the study plan. Students entering the M.A.T. program will be considered deficient if they have not completed a standard sequence in calculus (equivalent to Math 170-175-275).

The M.A.T. degree in mathematics may also be obtained via distance learning. This distance learning program is designed to meet the needs of in-service teachers. The requirements outlined above apply, but here the study plan is designed using courses that are available by video or in summer programs on campus or at off-campus sites.

Doctor of Philosophy. In addition to the general requirements for the Ph.D., the department requires that 42 credits of graduate-level mathematics be completed or transferred. The department requires the ability to translate into English from mathematical work in one of the languages: French, German, and Russian; a substitute language is sometimes allowed.

The preliminary examination must be taken after the language requirement and most of the study plan have been completed and before the dissertation is started. The preliminary examination is composed of three parts, each of which covers one of the areas: algebra, analysis, topology, combinatorics, and probability/mathematical statistics. At least two of these parts must be in the first three areas listed. These are given all in a one-week period and are graded by a departmental committee that may recommend additional testing in one or more of the specific areas if satisfactory results are not obtained. The committee may also recommend an oral examination in certain areas by the supervisory committee.

The dissertation must be of an original research nature and be in an area spanned by the research interests of the major professor. A final examination that amounts to a defense of the dissertation is required.

Department of Mechanical Engineering

Ralph S. Budwig, Dept. Chair (324I Engineering/Physics Bldg. 83844-0902; phone 208/885-6579; rbudwig@uidaho.edu; www.uidaho.edu/engr/ME). *Faculty:* Michael J. Anderson, Tony J. Anderson, Steven W. Beyerlein, Donald M. Blackketter, H. Clark Briggs, Ralph S. Budwig, John C. Crepeau, Karen R. Den Braven, Dean B. Edwards, Donald F. Elger, Richard T. Gill, Richard T Jacobsen, E. Clark Lemmon, Edwin M. Odom, Steven G. Penoncello, T. Alan Place, Ronald E. Smelser, Larry A. Stauffer, Judith A. Steciak, Robert R. Stephens, Blaine W. Tew, David E. Thompson.

Mechanical engineering is concerned with the application of the principles of science and technology in the creation of products and systems to benefit mankind in several areas including: (1) the conversion of energy from natural sources to provide power, light, heating and cooling, and transportation; (2) the design and production of machines to extend and to lighten the burden of human work; (3) the creative planning, design, development, and operation of systems for utilizing energy, machines, and other resources; (4) the production of manufactured goods; and (5) the interface between technology and society.

Mechanical engineering is broad in scope and provides a wide range of careers for trained professionals in industry, business, government, and universities. Positions are available in design, testing, manufacturing, research, development, operations, system analysis, marketing, and administration. Mechanical engineers are often involved as professional team members in economic and social-humanistic matters and are responsible for the interaction of technical advances with social and environmental concerns.

Departmental Objective Statement. The Department of Mechanical Engineering focuses on the professional and personal development of students while maintaining and continuously improving a relevant undergraduate curriculum that is ABET accredited.

Strengths of the department's curricula are: (a) a strong design experience featuring the design and construction of many projects; (b) a strong laboratory experience featuring hands on skills, state-of-the-art instrumentation, breadth of exposure to instrumentation and principles, and a senior project; and (c) substantial use of appropriate current engineering tools, such as the best available computer software.

Within the department's program, students develop: (a) the ability to use the techniques, skills, and modern engineering tools to identify, formulate, and solve engineering problems by applying knowledge of mathematics, science, and engineering while considering the impact of the solutions in a global and societal context based on contemporary issues; (b) the ability to design and conduct experiments as well as to analyze and interpret data; and (c) the ability to design a thermal system, a mechanical system, a component, or a process to meet desired needs.

With the industrial sponsored year-long senior capstone design projects, students use knowledge and skills acquired in earlier course work and incorporate engineering standards and realistic constraints (such as economic, environmental, sustainability, manufacturability, ethical, health and safety, social, and political) in their design projects.

Students interact frequently and personally with the faculty and are mentored and advised by the faculty. Through these interactions, faculty members encourage effective communication, teamwork (including those from other disciplines), and leadership, professional and ethical responsibility, creative discovery, and a commitment to lifelong learning.

The department is a college and university leader in the use of innovative pedagogy, horizontal and vertical curriculum integration, and the use of applied design projects.

Faculty members conduct academic research in a variety of interesting and relevant areas and maintain and continuously improve a graduate curriculum focused in five sub-areas: mechanics and materials science, dynamics systems, thermodynamics and energy, design and manufacturing, and fluids and heat transfer. Graduate students are given quality mentoring and advising in their graduate work.

The department provides engineering services (teaching, consulting, outreach, testing, and research) to support industry and national laboratories.

The department supports education throughout Idaho and beyond. This includes: (a) providing quality distance education courses through the Engineering Outreach Program; (b) support of, and inclusion of, departmental faculty at distance sites; and (c) collaboration with faculty at other educational centers.

Finally, the department provides services to professional societies and to the college and university, and faculty members serve on various university committees and with other organizations.

Faculty members are available to discuss details of the program in their specialty areas with interested students. General questions regarding the undergraduate program should be addressed to the department office (telephone 208/885-6579; mfoto@uidaho.edu).

A degree in manufacturing engineering may be available in the future when resources become available. Academic minors in manufacturing engineering and mechanical engineering are available. Contact the department for more information.

Mechanical Engineering Graduate Program. The following graduate degrees are available in mechanical engineering: Ph.D., M.S., and M.Engr. (nonthesis degree). The department also offers the Master of Engineering with a major in systems engineering. It may offer in the future M.S. and M.Engr. degrees in manufacturing engineering. In addition, the Ph.D., M.S., and M.Engr. in nuclear engineering are offered at the UI/Idaho Falls Center for Higher Education. Minimum preparation for graduate study in mechanical engineering is a B.S. degree in a curriculum in mechanical engineering that is accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.). Students entering the program with an engineering or physical science baccalaureate degree in a major other than mechanical engineering must demonstrate proficiency in the subjects required in the B.S.M.E. program. Individual student qualifications are assessed by the departmental graduate committee, which also determines undergraduate deficiencies.

The programs of study are designed to extend the student's understanding of the fundamental engineering sciences and their application to engineering systems design and analysis. Research programs are offered with specialization in the following general areas: (1) thermodynamics, fluid dynamics, and heat transfer, (2) materials and applied mechanics, and (3) product and process design including control systems, automation, robotics, human factors, materials, and manufacturing.

Graduate students will develop a plan of study in consultation with their academic adviser that will provide for reasonable concentration in a particular field of interest and a selection of related courses, some of which may be taught outside of the department. The thesis topic will generally be selected from research topics being pursued by members of the departmental faculty.

Courses

See part 6 for courses in Mechanical Engineering (ME) and Systems Engineering (SYS).

Undergraduate Curricular Requirements

MECHANICAL ENGINEERING (B.S.M.E.)

This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Note: Pre-advising is required to register in any ME course. To graduate in this program, a minimum grade of C must be earned in all required courses except ME 426 and 430.

Required course work includes the university requirements (see regulation J-3) and:

ME 123 Introduction to Mechanical Design 3
ME 223 Mechanical Design Analysis 3
ME 261 Engineering Materials or Met 201 Elements of Materials Science 3
ME 262 Sophomore Laboratory 2
ME 301 Advanced Engineering Graphics 3
ME 313 Dynamic Modeling of Engineering Systems 3
ME 323 Mechanical Engineering Design Seminar 3
ME 324 Dynamic Analysis in Machine Design 3
ME 330 Experimental Methods for Engineers 3
ME 341 Intermediate Mechanics of Materials 3
ME 345 Heat Transfer 3
ME 424 Mechanical Systems Design I 3
ME 425 Machine Component Design 3
ME 426 Mechanical Systems Design II 3
ME 430 Senior Laboratory 3
ME 435 Thermal Energy Systems Design 3
Chem 111 Principles of Chemistry I 4
CE 411 Engineering Fundamentals 0
Engr 105 Engineering Graphics 2
Engr 210 Engineering Statics 3
Engr 220 Engineering Dynamics 3
Engr 240 Introduction to Electrical Circuits 3
Engr 320 Engineering Thermodynamics & Heat Transfer 3
Engr 335 Engineering Fluid Mechanics 3
Engr 350 Engineering Mechanics of Materials 3
Engl 317 Technical & Engineering Report Writing 3
Math 170, 175, 275 Analytic Geometry & Calculus 11
Math 310 Ordinary Differential Equations 3
Phys 211, 212, 213 Engineering Physics I-II-III 12
Humanities and social sciences electives, including AmSt 301 and Econ 201 or 202 or 272 14
Technical electives selected from ME 304, 409, 410, 412, 413, 420, 422, 427, 433, 443, 444, 451, 461, 463, 472, 473, 476, 481 9
Free electives 2

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in mechanical engineering must earn a grade of C or better in each specified lower-division course before registration is permitted in upper-division mechanical engineering courses. The specific lower-division courses are: Chem 111, Engr 105, 210, 220, and 240, Engl 102, Math 170, 175, 275, and 310, ME 123, 223, 261, and 262, Phys 211, 212, and 213. In addition, a grade higher than C must be earned in at least five of these courses. A grade of P (pass) in any of these courses is considered as a C grade in satisfying this certification requirement.

Academic Minor Requirements

MANUFACTURING ENGINEERING MINOR

This minor is not accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Bus 370 Production/Operations Management 3
Bus 439 Systems & Simulation or Bus 456 Quality Management 3
Econ 202 Principles of Economics 3
ITED 250 Manufacturing Technology Systems 4
ME 304 Materials Selection & Processing for Mechanical Design 3
ME 409 Human Factors in Engineering Design or ME 481 Control Systems 3
ME 410 Production Engineering 3
ME 476 Automation, Robotics, & Computer Integrated Manufacturing 3

Only two ME classes listed above may be used to fulfill requirements for a manufacturing engineering minor AND mechanical engineering technical electives.

MECHANICAL ENGINEERING MINOR

ME 123 Introduction to Mechanical Design 3
ME 223 Mechanical Design Analysis 3
Engr 105 Engineering Graphics 2
Engr 210 Engineering Statics 3
Engr 220 Engineering Dynamics 3
Courses selected from the following (including at least 6 cr from ME courses) 9
- ME 313 Dynamic Modeling of Engineering Systems
- ME 324 Dynamic Analysis in Machine Design
- ME 341 Intermediate Mechanics of Materials
- ME 345 Heat Transfer
- Engr 320 Engineering Thermodynamics & Heat Transfer
- Engr 335 Engineering Fluid Mechanics
- Engr 350 Engineering Mechanics of Materials

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Mechanical Engineering. Applicants for admission generally will have a B.S. degree in mechanical engineering. Those students admitted with degrees in other engineering fields will be expected to complete any undergraduate deficiencies. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. General M.S. requirements apply, along with departmental requirements as listed in the departmental graduate handbook.

Master of Engineering. General M.Engr. requirements apply, along with departmental requirements as listed in the departmental graduate handbook.

Doctor of Philosophy. General Ph.D. requirements apply, along with departmental requirements as listed in the departmental graduate handbook. Preliminary screening of candidates and program planning for those admitted are essential features of the Ph.D. program. Early in the program, the student must complete a qualifying examination, which will be oral and possibly written. The preliminary examination is taken after most of the course work is completed. This examination also includes a presentation of the dissertation progress or proposal. No foreign language is required; however, the department does require a satisfactory level of achievement in mathematics and numerical analyses and in computer programming.

Department of Microbiology, Molecular Biology and Biochemistry

Gregory A. Bohach, Dept. Head (142 Life Sc. Bldg 83844-3052; phone 208/885-7966). *Faculty:* Kenneth W. Bayles, Carolyn H. Bohach, Gregory A. Bohach, Allan B. Caplan, Zhixiang Chen, Douglas G. Cole, Donald L. Crawford, Ronald L. Crawford, Patricia L. Hartzell, Richard C. Heimsch, Bruce L. Miller, Scott A. Minnich, Philip A. Youderian. *Adjunct Faculty:* Philip H. Berger, Alton G. Campbell, I. Francis Cheng, Roger Ely, Guy R. Knudsen, Matthew Morra, Clifford F. Weil. *Affiliate Faculty:* William A. Apel, Debonny Barsky-Shoaf, Frederick S. Colwell, Robert W. Ellis, James K. Fredrickson, Frederick Leung, Rick L. Ornstein, Francisco F. Roberto, Robert D. Rogers, Robert Rychert, Dennis L. Stevens, Daphne L. Stoner, William R. Trumble, Thomas Ward, James H. Wolfram.

Microbiology is concerned with the study of microscopic forms of life, their distribution, importance, and role in such diverse areas as control and diagnosis of diseases, agricultural biotechnology, environmental and pollution control, and genetic engineering.

Molecular biology and biochemistry is the study of the molecular basis of life, the chemical, physical, and genetic properties of living things, their metabolic processes, and the new technologies for the genetic engineering of organisms.

The Department of Microbiology, Molecular Biology and Biochemistry offers the degrees of Bachelor of Science in Microbiology and Bachelor of Science in Molecular Biology and Biochemistry. The microbiology degree is offered in both the College of Agriculture and the College of Letters and Science while the degree in molecular biology and biochemistry is offered through the College of Agriculture. Students may choose to emphasize general microbiology or molecular biology and biochemistry by appropriate choices of courses. In addition, the department offers the degree of Bachelor of Science in Medical Technology for students who have earned the Bachelor of Science in Microbiology at UI and have completed medical technology training in an accredited hospital school. In each case, the curriculum emphasizes the need for a broad cultural base and specific training in biology, chemistry, mathematics, and physics, in addition to courses in the specialty area. Well-equipped laboratories are available and advanced students are encouraged to undertake research problems with the faculty. The department also provides courses for students who are majoring in other areas of the university and wish to obtain increased understanding of the sciences. Students are invited to inquire about academic minors in the department.

The Department of Microbiology, Molecular Biology and Biochemistry is a research and teaching unit within the College of Agriculture with extensive research expertise and instructional responsibilities in molecular biology, microbiology, and biochemistry. Scientists in the department are in the forefront of research with bacteria, fungi, and plants. The department has particular strengths in microbial physiology and ecology, developmental biology, membrane biochemistry, microbial pathogenesis and immunology, and plant molecular biology with a strong emphasis on the use of contemporary genetic engineering techniques.

Current research efforts designed to add to our scientific knowledge base include studies on the biochemistry and molecular biology of bacterial toxins including their effects on biomembranes, alteration of their immunological characteristics, and identification of active sites by site-directed mutagenesis; the isolation, characterization, and molecular cloning of unique enzymes capable of lignocellulose biodegradation from bacteria and fungi; the control of gene expression in a range of procaryotes and eucaryotes including molecular and biochemical basis of cell motility; the developmental control of sporulation genes in fungi, and pathogenesis determinants in bacteria; and microbial ecology with special emphasis on bacterial composition and metabolite cycling in surface films and carbon cycling in soil.

In addition to these basic research interests, faculty are involved in applying new knowledge to applied problems in biotechnology. Much of this work is in association with the University of Idaho's Environmental Biotechnology Institute (EBI), which coordinates environmental biotechnological research between university departments and encourages joint endeavors between diverse disciplines. Specific projects include the development of improved vaccines, the survival of genetically engineering organisms in the environment, the detection and control of bacteria and fungi that are pathogenic for humans, animals, and plants, biological control of weeds and phytopathogens, bacterial bioremediation of hazardous waste sites, the bioprocessing of chemicals and minerals to increase their economic value, e.g., coal to render it a liquid and ores to remove precious metals, and the improvement of bacterial detection systems for increased food safety.

This combination of basic and applied research, funded at the multi-million dollar level, provides a stimulating environment where graduate students can gain extensive research experience in all aspects of modern microbiology, biochemistry, and molecular biology. Students can select from a broad range of courses presenting the latest information in all areas of biochemical and microbial sciences. All members of the departmental faculty are actively involved in research and teaching programs that provide students with a broad perspective of important problems in modern biology.

Prospective students may call or write to the department or individual faculty members for additional information concerning ongoing research activities and the availability of research assistantships.

In addition to the admission requirements of the Graduate College, prospective graduate students should have maintained an overall B average for all course work taken and have majored in an area of biological or chemical sciences. Results of the Graduate Record Examination (GRE) and three letters of recommendation are required. Students for whom English is a foreign language must have a TOEFL score of at least 580. Prior training should have included courses in general biology and chemistry, organic chemistry, biochemistry, calculus, physics, and introductory microbiology. Acceptance of students deficient in some of these areas will be considered on an individual basis. In such cases, it will be expected that the deficiencies will be removed early during the graduate program.

Courses

See part 6 for courses in Microbiology, Molecular Biology and Biochemistry (MMBB).

Undergraduate Curricular Requirements

MICROBIOLOGY (B.S.Microbiol. or B.S.)

The major in microbiology is offered through either the College of Agriculture (B.S.Microbiol.) or the College of Letters and Science (B.S.). The undergraduate curriculum in microbiology prepares students for interesting and challenging careers in biotechnology, public health, medical technology, and a broad spectrum of industry, government, and agricultural research laboratories. It is also an excellent curriculum for those intending to apply to an array of graduate programs in the biological sciences or professional programs in dentistry, medicine, or veterinary medicine.

Required course work includes the university requirements (see regulation J-3), the general requirements for the B.S. degree if applicable, and:

MMBB 250 General Microbiology 5
MMBB 380 Introductory Biochemistry 4
MMBB 400 Seminar 1
MMBB 440 Advanced Laboratory Techniques 4
At least two of the following microbiology electives 5-6
- MMBB 409 Immunology
- MMBB 412 Pathogenic Microbiology
- MMBB 414 General Virology
- MMBB 416 Food Microbiology
- MMBB 420 Epidemiology
- MMBB 425 Microbial Ecology
- MMBB 460 Microbial Physiology

At least one of the following microbiology electives 2-3
- MMBB 450 Molecular Mechanisms in Microbiology
- MMBB 485 Prokaryotic Molecular Biology
- MMBB 487 Eukaryotic Molecular Genetics

Biol 201 Introduction to the Life Sciences 4
Biol 351/Gene 314 General Genetics 3
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 277, 278 Organic Chemistry I & Lab 4
Chem 372 Organic Chemistry II 3
Engl 317 Tech & Engr Report Writing or 207 Persuasive Writing or 208 Personal & Exploratory Writing or 209 Inquiry-Based Writing 3
Math 160 Survey of Calculus or Math 170 Analytic Geometry & Calculus I 4
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
Humanities and social sciences electives 14
Science electives 6
Electives to total 128 cr for the degree ..... —

MEDICAL TECHNOLOGY

The medical technologist performs critical laboratory tests and analytical procedures that aid physicians in the diagnosis and treatment of disease. The curriculum is of interest to students desiring professional careers in hospital and clinical laboratories, public health and research laboratories, and pharmaceutical laboratories.

Students who wish to apply for clinical training in medical technology at an accredited hospital will be required to take Zool 120 and 121. Upon completion of the B.S. degree in microbiology (medical technology option), those students who successfully complete 32 credits (MMBB 421) in a 12-month training course at an accredited hospital school of medical technology with a curriculum including clinical bacteriology, medical mycology, parasitology, clinical chemistry, toxicology, urinalysis, hematology, immunology-serology, immunohematology, and clinical correlations will be awarded the B.S. degree with major in medical technology. This second degree option is open only to students who have earned the B.S. in microbiology at UI.

MOLECULAR BIOLOGY AND BIOCHEMISTRY (B.S.M.B.B.)

The major in molecular biology and biochemistry is offered through the College of Agriculture. Molecular biology and biochemistry are two of the fastest growing research areas in modern biological sciences. Students training in this area will be prepared for a number of technical professions in various aspects of biotechnology including laboratory positions in health, medicine, agriculture, and food processing industries. In addition, a B.S. degree in molecular biology and biochemistry is excellent preparation for further graduate and professional training in the biological and medical sciences.

Required course work includes the university requirements (see regulation J-3) and:

MMBB 250 General Microbiology 5
MMBB 380, 382 Introductory Biochemistry & Lab 5
MMBB 400 Seminar 1
MMBB 440 Advanced Laboratory Techniques 4
MMBB 480 Biochemistry & Molecular Biology 3
MMBB 488 Genetic Engineering 3
Biol 201/Gene 314 Intro to the Life Sciences 4
Biol 351 General Genetics 3
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 253 Quantitative Analysis 5
Chem 277, 278 Organic Chemistry I & Lab 4
Chem 302 Principles of Physical Chemistry 3
Chem 372, 376 Organic Chemistry II & Lab 5
Engl 317 Tech & Engr Report Writing or 207 Persuasive Writing or 208 Personal & Exploratory Writing or 209 Inquiry-Based Writing 3
Math 160 Survey of Calculus or Math 170 Analytic Geometry & Calculus I 4
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
One of the following physiology electives 3-4
- MMBB 460 Microbial Physiology
- MMBB 475 Molecular Biology of Cells
- Bot 311 Plant Physiology

One of the following molecular biology and biochemistry electives 2-3
- MMBB 409 Immunology
- MMBB 412 Pathogenic Microbiology
- MMBB 450 Molecular Mechanisms in Microbiology
- MMBB 485 Prokaryotic Molecular Biology
- MMBB 486 Plant Biochemistry
- MMBB 487 Eukaryotic Molecular Genetics

Science electives 12
Electives to total 128 credits for the degree ..... —

Note for double majors in molecular biology and biochemistry and in microbiology: Elective courses used as required courses for one degree cannot be used as a science elective in the second degree.

Academic Minor Requirements

BIOCHEMISTRY MINOR

MMBB 380 Introductory Biochemistry 4
MMBB 480 Biochemistry & Molecular Biology 3
Courses selected from the following 12
- MMBB 382 Intro Biochem Lab or 484 Biochem Lab (1 or 2 cr)
- MMBB 400 Seminar (2 cr)
- MMBB 401 Undergrad Research (1-4 cr)
- MMBB 486 Plant Biochemistry (3 cr)
- Chem 302, 303 Principles of Physical Chemistry & Lab (or equiv) (4 cr)

MICROBIOLOGY MINOR

MMBB 250 General Microbiology 5
MMBB 380 Introductory Biochemistry 4
Courses selected from the following 10
- MMBB 409 Immunology
- MMBB 412 Pathogenic Microbiology
- MMBB 416 Food Microbiology
- MMBB 425 Microbial Ecology
- MMBB 440 Advanced Laboratory Techniques
- MMBB 450 Molecular Mechanisms in Microbiology
- MMBB 460 Microbial Physiology
- MMBB 485 Prokaryotic Molecular Biology
- MMBB 487 Eukaryotic Molecular Genetics
- MMBB 488 Genetic Engineering

MOLECULAR BIOLOGY AND BIOCHEMISTRY MINOR

MMBB 380 Introductory Biochemistry 4
MMBB 480 Biochemistry & Molecular Biology 3
Courses selected from the following 12
- MMBB 382 Introductory Biochemistry Lab
- MMBB 486 Plant Biochemistry
- MMBB 488 Genetic Engineering
- Chem 302 Principles of Physical Chem or 305, 306 Physical Chem

Up to two of the following physiology courses 3-6
- MMBB 460 Microbial Physiology
- MMBB 475 Molecular Biology of Cells
- Bot 311 Plant Physiology

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and the Department of Microbiology, Molecular Biology and Biochemistry. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. The M.S. degree may be earned in microbiology, molecular biology and biochemistry. An incoming student arranges a formal graduate program of at least 30 semester hours in consultation with his or her major professor and supervisory committee. The student is also expected to include MMBB 501 (seminar) each semester. One semester of teaching is required and is obtained through participation in the department's teaching programs. A master's candidate prepares a written thesis documenting completion of a laboratory research program. The thesis must be approved by the student's major professor and supervisory committee and be defended during an oral examination. Publication of data from the thesis in the peer-reviewed literature is expected.

Doctor of Philosophy. The Ph.D. degree may be earned in microbiology, molecular biology and biochemistry. A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and supervisory committee. The student is also expected to include MMBB 501 (seminar) each semester, with active participation in the form of one or more seminar presentations during the course of his or her graduate career. Two semesters of teaching experience is required and is obtained through participation in the department's teaching programs. A preliminary examination, usually oral, is required prior to admission to final candidacy for the degree. All candidates prepare a formal dissertation reflecting original thought and independent laboratory investigation and defend it during an oral presentation as a final step toward their degree. Publication of data from the dissertation in the peer-reviewed, scientific literature is expected.

Department of Military Science

Lloyd E. Mues, Dept. Head (West End, Mem. Gym. 83844-2424; phone 208/885-6528; ashea@uidaho.edu). ***Faculty:*** **Gregory S. Applegate, Franz Conway, Kurt H. Cook, Lloyd E. Mues, Jerry H. Weaver, James M. Zuba.**

Army ROTC, as represented at UI by the Department of Military Science, is the major source of commissioned officers for the U.S. Army. After successfully completing the program and baccalaureate degree requirements in almost any field, the student receives a commission as a second lieutenant. At this time active duty is not a requirement but is something for which students compete. Graduates also choose from among 26 different branches or specialties. Those not choosing active duty serve with the Army Reserves or Army National Guard on a part-time basis. Two- and three-year scholarships are available.

All levels of course work combine classroom instruction with practical exercises. The basic course, consisting of a one-credit course each freshman semester and a two-credit course each sophomore semester, is designed to provide men and women with information on opportunities as an officer in the Army on active duty or in the National Guard or Army Reserve. The two-year basic curriculum covers Army career opportunities, confidence building exercise, map reading, leadership, management principles, first aid, and other life skills with broad applications beyond the military. Students may voluntarily participate in one of several adventure activities (rappelling, rifle marksmanship, white water rafting, downhill skiing, etc.). Basic-course students, other than scholarship students, do not make a military commitment during this period. These students survey Army opportunities and decide whether to continue in the program as advanced-course students.

The advanced course consists of a three-credit course normally taken each semester during the last two years of university study and includes a five-week advanced camp at Fort Lewis, Washington (normally after the junior year). Students in the advanced course receive monthly stipends of $200 during the school year. Study centers on leadership styles and techniques with special emphasis placed on small-unit leadership.

The primary objective of the Army ROTC program is to develop leadership and management skills in students. Supplementary objectives include enhancement of the student's abilities in speaking and writing, goal seeking, and problem solving. Key to the program is the development of personal attributes essential to military service. Those attributes include sound situational assessment, decision making, and the ability to know, understand, and lead people. Additionally, the department hopes to cultivate within its students a strong sense of personal integrity, self-discipline, and responsibility.

Prior to commissioning, all cadets must demonstrate proficiency in communications, military history, and computer literacy. This may be achieved through taking UI course offerings in those subject areas. See your Army ROTC class adviser for a list of approved courses.

Departmental members will answer questions about specific programs and courses. Contact the department by going to the west end of Memorial Gymnasium or by calling 208/885-6528 (collect if out of state), or by e-mail at ashea@uidaho.edu. Further information is available on the World Wide Web (http://www.uidaho.edu/armyrotc).

Courses

See part 6 for courses in Military Science (MS).

Lionel Hampton School of Music

James L. Murphy, Director (205 Music Bldg. 83844-4015; phone 208/885-6231; e-mail music@uidaho.edu). ***Faculty:*** **Carol Padgham Albrecht, Daniel J. Bukvich, J. Roger Cole, Robert Dickow, Mary H. DuPree, Mark E. Fisch, Alan J. Gemberling, Natalie J. Kreutzer, Torrey E. Lawrence, J. Cameron Littlefield, G. Jay Mauchley, Sandra Mauchley, Robert T. McCurdy, Robert W. Miller, James L. Murphy, James E. Reid, Michael D. Russell, Catherine M. Schulhauser, Lynn J. Skinner, Warren Swenson, William C. Wharton.** ***Adjunct Faculty:*** **Susan M. Hess.**

The Lionel Hampton School of Music, so designated in 1987 in honor of the eminent American jazz musician, is an accredited institutional member of the National Association of Schools of Music. Established as a department in 1893, it was elevated to school status in 1969.

The courses and curricula in music seek to prepare elementary, secondary, and college teachers of music; to train professional musicians; to enrich the cultural environment for students and provide liberal-arts instruction; and to engage in research in music performance and teaching for the general benefit of the public and the discipline of music.

Students in this school learn by performing, listening, analyzing, and creating music. Emphasis is on the understanding of musical styles and techniques of all eras, including contemporary music. Musical studies balance the aesthetic and the practical, with ample opportunity for exploration and self-reliance.

The formal undergraduate curricula of the School of Music consist of degree programs in the following areas:

Bachelor of Music in Performance
- Specialization in voice, piano, guitar, or any orchestral instrument.

Bachelor of Music in Composition

Bachelor of Music in Music Education
- Specialization in vocal music education, instrumental music education, or a combined program in vocal and instrumental music education.

Bachelor of Music in Business
- Specialization in performance or composition combined with studies in accounting, economics, statistics, management, and marketing.

Bachelor of Arts in Music
- Emphasis in music theory, music history, or applied music. Applied music study can be in any of the areas of specialty listed under the Bachelor of Music in Performance.

Bachelor of Science in Music
- Emphasis in music theory, music history, or applied music. Applied music study can be in any of the areas of specialty listed under the Bachelor of Music in Performance.

The B.Mus. degree is professionally oriented, and is the normal preparation for graduate study in music or for teacher education. The B.A. and B.S. degrees emphasize a broad liberal-arts education. Acceptance to the B.Mus., B.A., and B.S. degree programs requires an audition. The School of Music also offers a minor in music and participates in the university core curriculum by offering the course "Survey of Music." The ensembles and performing groups sponsored by the School of Music are open to all students, regardless of major.

The Music Building houses the Agnes Crawford Schuldt Music Library, faculty studios, ensemble rehearsal areas, classrooms, a music education materials center, a listening center, and a recital hall. Individual practice rooms are available in nearby Ridenbaugh Hall. Recording, radio-television, language listening lab, and computer facilities of the campus are also used by music students. In addition to organ, harpsichord, harp, and piano practice instruments, the school maintains two performance pipe organs, three concert grand pianos, and a concert harpsichord.

The Hampton School offers degrees at the master's level; Master of Music degrees are available in music education, performance (vocal and instrumental), composition, accompanying, and piano pedagogy and performance studies. The Master of Arts option is in music history.

The school offers prospective graduate students a wide range of individual and group instruction opportunities as preparation for professional careers in music either as performers, composers, scholars, or music educators. Study is enriched through participation in recitals in addition to participation in both small and large vocal and instrumental ensembles.

Admission to the M.A. or M.Mus. program in this school normally requires a baccalaureate degree in music from an accredited institution. Each student must take diagnostic placement examinations in music history and theory at the time of first registration as a graduate student. Those interested in pursuing the degree pattern in music education must also take an exam in music education. At the time the student is admitted to the school, a supervisory committee and a chair of that committee will be appointed.

While the primary emphasis of graduate work is concerned with subject matter areas, the importance of performance is not neglected. Students are encouraged, and in some cases required, to participate in one organized ensemble each academic session in residence.

Courses

See part 6 for courses in Applied Performance Studies (MusA), Theory and Composition (MusC), History and Literature (MusH), Music Teaching (MusT), General (MusX).

Undergraduate Curricular Requirements

General Requirements for All B.A., B.S., and B.Mus. Degrees

Minimum Grade Requirement. A music student, either major or minor, must achieve a minimum grade of C in each music course, either resident or transfer, which is applicable to a degree program in music before the student will be eligible for graduation.

Ensemble Participation. An undergraduate music major must: (1) earn a minimum of eight credits in ensemble participation to be eligible for graduation and (2) enroll in an ensemble during each semester of full-time study. Various requirements are contained in the specific curricula. For curricular purposes, "large ensemble" is defined to mean MusA 117/317, 119/319, 121/321, 316, 320, or 322. Other ensembles (listed in some curricula under "Chamber Music") consist of MusA 118/318, 315, 323, 365, and 380. For students in the B.A. or B.S. in Applied Music or the B.Mus. in Music: Business, the following minimum requirements apply depending on the primary applied area of the student:

Orchestral Instrument: six credits in instrumental large ensemble and two additional credits in any instrumental ensemble.

Voice: six credits in vocal large ensemble and two additional credits in any vocal ensemble.

Keyboard: two credits in any large ensemble, four credits in MusA 315, and two credits in MusA 365.

Guitar: four credits in any large ensemble and four credits in MusA 365-02 Chamber Ensemble: Guitar Ensemble.

Keyboard Proficiency. Minimum keyboard proficiency for all music majors is met by satisfactory completion of MusA 145-146, 245-246, Piano Class, or by passing a keyboard proficiency examination.

Convocation-Recital Attendance. Because listening experiences constitute an area of major importance in the study of music, all music majors and music minors are required to register for MusX 140, Convocation; music majors must attend 10 recitals per semester for seven semesters and music minors must attend 10 recitals per semester for two semesters. Recital credit will not be granted for those performances in which a student participates. In addition, music majors must attend the weekly convocation series (studio class, area recital, and convocation). Transfer students are expected to enroll in MusX 140 during their first registration, and to receive a passing grade in a specific number of semesters (to be determined when the student's program is set up). Students must attend a full concert or program in order for it to be counted toward convocation-recital requirements.

Upper-Division Standing (UDS). For an undergraduate music major to enroll in MusA 324 or 334, or for a composition major to enroll in MusC 325, the student must have passed the requirements of the major area; this involves a special jury examination and demonstration of mastery of the fundamentals of the student's major area of performance/composition and the potential to continue improving in a manner that will lead to the successful completion of performance/composition requirements of the degree and major emphasis.

In order to register for upper-division music education courses (not including instrumental techniques courses), an undergraduate music education major must: (1) make application to upper-division music education courses by completing and submitting an application form (available in the music office) to the chair of the Music Education Committee—this should be done in the semester in which the student is enrolled in ED 201; (2) successfully complete ED 201 and the necessary core courses to meet the requirements of the application to Teacher Education in the College of Education; (3) obtain a "C" or better in music courses and at least a 2.5 overall GPA; (4) pass the individual instruction upper-division standing jury; and (5) interview with the music education faculty at the end of the semester in which the student is enrolled in ED 201.

Diagnostic Exam in Theory and Aural Skills. The goal of this exam is to advise students regarding deficiencies in their prior theory training; this exam is not available to freshmen. A study guide is available in the music office. The exam is given during the first week of classes each semester, as needed. It is in four parts, one covering each semester of the theory/aural skills sequence. The exam will not be used for "advanced placement" or "credit by examination," as the regulations regarding these procedures are covered in regulation D-4 in Part 3. Written evaluation of each student's achievement will be placed in his or her advising file, and the student will be counseled appropriately.

Transfer Credits. Transfer credits will be accepted at the upper-division level only if taken at the upper-division level from the original institution (i.e., a 100- or 200-level course will not transfer as a 300- or 400-level course requirement). The applicability of these credits to the student's program of study is determined by the Lionel Hampton School of Music.

MUSIC: APPLIED MUSIC (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the L&S requirements for the B.A. or B.S. degree, and:

MusA 124 Individual Instruction (major instrument or voice)	8
MusA 324 Individual Instruction (major instrument or voice)	8
MusA 145-146, 245-246 Piano Class	4
MusA 490 Recital (half)	0
MusC 139-140, 239-240 Aural Skills	6
MusC 141-142, 241-242 Theory of Music	10
MusH 111 Introduction to Music	2
MusH 321, 322, 323 Music in Western Civilization	9
MusX 140 Convocation (seven semesters)	0
MusA ensembles (in eight different semesters) (see "Ensemble Particiation" above for specific requirements)	8
Electives to total 128 cr for the degree (incl at least 73 cr in nonmusic courses)	—

MUSIC: HISTORY AND LITERATURE (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the L&S requirements for the B.A. or B.S. degree, and:

MusA 114 Individual Instruction	4
MusA 314 Individual Instruction (one instrument/voice)	4
MusA 145-146, 245-246 Piano Class	4
MusC 139-140, 239-240 Aural Skills	6
MusC 141-142, 241-242 Theory of Music	10
MusH 111 Introduction to Music	2
MusH 321, 322, 323 Music in Western Civilization	9
MusX 140 Convocation (seven semesters)	0
Upper-division MusH electives	6
Upper-division MusC elective	2
MusA ensembles (in eight different semesters)	8
Electives to total 128 cr for the degree (incl at least 73 cr in nonmusic courses)	—

MUSIC: THEORY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the L&S requirements for the B.A. or B.S. degree, and:

MusA 114 Individual Instruction	4
MusA 314 Individual Instruction (one instrument/voice)	4
MusA 145-146, 245-246 Piano Class	4
MusC 139-140, 239-240 Aural Skills	6
MusC 141-142, 241-242 Theory of Music	10
MusH 111 Introduction to Music	2
MusH 321, 322, 323 Music in Western Civilization	9
MusX 140 Convocation (seven semesters)	0
Upper-division MusC electives	8
MusA ensembles (in eight different semesters)	8
Electives to total 128 cr for the degree (incl at least 73 cr in nonmusic courses)	—

MUSIC: INSTRUMENTAL PERFORMANCE (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and the specific requirements in one of the two sections below. It is strongly recommended and in some cases required that instrumentalists elect pedagogy courses appropriate to their major fields.

A. KEYBOARD

Note: Keyboard majors must pass the class piano proficiency exam or register for the appropriate level of class piano until the proficiency exam is passed.

MusA 134 Individual Instruction	12
MusA 334 Individual Instruction	12
MusA 315 Accompanying	4
MusA 365 Chamber Ensemble	2
MusA 387 Conducting I	2
MusA 454 Performance Practices	2
MusA 490 Recital (half)	0
MusA 491 Recital (full)	0
MusC 139-140, 239-240 Aural Skills	6
MusC 141-142, 241-242 Theory of Music	10
MusC 331 Counterpoint	3
MusC 442 Musical Analysis	2
MusH 111 Introduction to Music	2
MusH 321, 322, 323 Music in Western Civilization	9
MusH 451 Repertoire: Keyboard	4
MusT 435 Pedagogy & Materials: Keyboard	4
MusX 140 Convocation (seven semesters)	0
Music history elective	3
Large ensemble (two different semesters chosen from MusA 117, 119, 121, 316, 317, 319, 320, 321, 322)	2
Music electives to complete 84 cr in music	5
Electives to total 128 cr for the degree	—

B. ORCHESTRAL INSTRUMENTS OR GUITAR

Note: MusT 435, Pedagogy and Materials: Guitar (2 cr), is required of guitar majors.

MusA 134 Individual Instruction	12
MusA 334 Individual Instruction	12
MusA 145-146, 245-246 Piano Class	4
MusA 387 Conducting I	2
MusA 454 Performance Practices	2
MusA 490 Recital (half)	0
MusA 491 Recital (full)	0
MusC 139-140, 239-240 Aural Skills	6
MusC 141-142, 241-242 Theory of Music	10
MusC 331 Counterpoint	3
MusC 442 Musical Analysis	2
MusH 111 Introduction to Music	2
MusH 321, 322, 323 Music in Western Civilization	9
MusH 451 Repertoire	2
MusX 140 Convocation (seven semesters)	0
Music history elective	3
Large ensemble (eight different semesters chosen from MusA 121, 320, 321, 322) (4 cr in four different semesters reqd for guitar majors, who may also chose from MusA 117, 119, 316, 317, 319)	8
Chamber music (two different semesters chosen from MusA 323, 365) (4 cr in four different semesters of MusA 365: Guitar Ensemble, reqd for guitar majors)	2
Music electives to complete 84 cr in music	5
Electives to total 128 cr for the degree	—

MUSIC: VOCAL PERFORMANCE (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and:

MusA 134 Individual Instruction	12
MusA 334 Individual Instruction	12
MusA 145-146, 245-246 Piano Class	4
MusA 380 Opera Workshop (two different semesters)	2
MusA 387 Conducting I	2
MusA 454 Performance Practices	2

MusA 490 Recital (half) 0
MusA 491 Recital (full) 0
MusC 139-140, 239-240 Aural Skills 6
MusC 141-142, 241-242 Theory of Music 10
MusC 331 Counterpoint 3
MusC 442 Musical Analysis 2
MusH 111 Introduction to Music 2
MusH 321, 322, 323 Music in Western Civilization 9
MusH 451 Repertoire: Voice 2
MusT 435 Pedagogy & Materials: Voice 2
MusX 140 Convocation (seven semesters) 0
MusX 283-284 Diction for Singers 4
Foreign language (two years of one language or one year each of two languages) 16
Music history elective 3
Large ensemble (six different semesters chosen from MusA 117, 316, 317) 6
Chamber music (two different semesters chosen from MusA 118, 318, 365) 2
Music electives to complete 84 cr in music 3
Electives to total 128 cr for the degree ..... —

MUSIC: COMPOSITION (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and:

MusA 114 Individual Instruction (if major performing medium is other than piano, piano is suggested for the minor area) 2
MusA 124 Individual Instruction 8
MusA 324 Individual Instruction 4
MusA 145-146, 245-246 Piano Class 4
MusA 387 Conducting I 2
MusC 139-140, 239-240 Aural Skills 6
MusC 141-142, 241-242 Theory of Music 10
MusC 325 Composition 4
MusC 328 Instrumental & Choral Arranging 3
MusC 331 Counterpoint 3
MusC 425 Advanced Composition 4
MusC 426 Electronic Music 2
MusC 442 Musical Analysis 2
MusC 490 Recital 0
MusH 111 Introduction to Music 2
MusH 321, 322, 323 Music in Western Civilization 9
MusX 140 Convocation (seven semesters) 0
Music history elective 3
Large ensemble (eight different semesters chosen from MusA 117, 119, 121, 316, 317, 319, 320, 321, 322) 8
Chamber music (two different semesters chosen from MusA 118, 318, 323, 365) (one semester of MusA 315, Accompanying, is reqd of students whose major applied medium is keyboard) 2
Music electives to complete 84 cr in music 4
Electives to total 128 cr for the degree ..... —

MUSIC: BUSINESS (B.Mus.)

Required course work includes the university requirements (see regulation J-3) and:

MusA 124 Individual Instruction 8
MusA 324 Individual Instruction 8
MusA 145-146, 245-246 Piano Class 4
MusA 387 Conducting I 2
MusA 490 Recital (half) 0
MusA ensemble (in eight different semesters) (see "Ensemble Particiation" above for specific requirements) 8
MusC 139-140, 239-240 Aural Skills 6
MusC 141-142, 241-242 Theory of Music 10
MusC elective at the 300 or 400 level 2-3
MusH 111 Introduction to Music 2
MusH 321, 322, 323 Music in Western Civilization 9
MusH elective at the 400 level 2-3
MusX 140 Convocation (seven semesters) 0
Music electives (to total 64 credits in music) 1-3
Acct 201 Introduction to Financial Accounting 3
Acct 202 Introduction to Managerial Accounting 3
Bus 301 Financial Management 3
Bus 311 Introduction to Management 3
Bus 321 Marketing 3
Two of the following courses 6
- BLaw 265 Legal Environment of Business
- Bus 324 Buyer Behavior
- Bus 412 Human Resource Management
- Bus 413 Organizational Behavior
- Bus 425 Retail Distribution Management
- Bus 427 Services Marketing

Comm 101 Fundamentals of Public Speaking 2
Econ 201-202 Principles of Economics 6
Stat 251 Principles of Statistics 3

Note: Students who wish to emphasize composition must: (1) substitute four credits of MusC 325, Composition, for four credits of MusA 324; (2) take four credits of MusC 425, Advanced Composition, as their upper-division theory elective, and (3) substitute MusC 490, Recital, for MusA 490, Recital.

MUSIC EDUCATION: VOCAL (B.Mus.)

NOTE: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a GPA of 2.5. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of part four of this catalog.

Comprehensive Exit Exam. Students in this degree program take a comprehensive exam consisting of questions solicited from those faculty members who teach the respective music education courses. This exam is administered as a part of MusT 445, Proseminar in Music Teaching. Students are given the complete list of questions, from which the test questions will be drawn, at least three weeks before the announced date of the exam. The completed tests are evaluated by the music education faculty; where questions arise about the quality of one or more responses, the faculty member who submitted the question is asked for his or her input. Each student must successfully complete the comprehensive exam before being permitted to student teach. If unsuccessful, the student may repeat the test as many times as necessary to pass.

Required course work includes the university requirements (see regulation J-3) and:

MusA 114 Individual Instruction (voice for piano majors; piano for voice majors)* 4
MusA 314 Individual Instruction (voice for piano majors; piano for voice majors)* 2
MusA 124 Individual Instruction 8
MusA 324 Individual Instruction 6
MusA 145-146, 245-246 Piano Class 4
MusA 151 or 152 Guitar Class 1
MusA 380 Opera Workshop 1
MusA 387, 487 Conducting I, II 4
MusA 490 Recital (half) 0
MusC 139-140, 239-240 Aural Skills 6
MusC 141-142, 241-242 Theory of Music 10
MusC 328 Instrumental & Choral Arranging 3
MusH 111 Introduction to Music 2
MusH 321, 322, 323 Music in Western Civilization 9
MusT 381 Elementary School Music Methods I 3
MusT 383 Principles of Music Teaching 3
MusT 385 Choral Music in the Secondary School 2
MusT 432 Practicum: Music Teaching 14
MusT 435 Pedagogy & Materials: Voice 2
MusT 445 Proseminar in Music Teaching 2
MusT 485 Choral Ensemble Rehearsal Techniques 1
MusX 140 Convocation (seven semesters) 0
MusX 283-284 Diction for Singers 4
Comm 101 Fundamentals of Public Speaking 2
ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
ED 312 Educational Psychology 2
ED 313 Educational Measurement 1
ED 314 Strategies for Teaching 3
EDTE 463 Literacy Methods for Content Learning 3
Psyc 101 Introduction to Psychology 3
Large ensemble (six different semesters chosen from MusA 117, 316, 317) 6
Other ensemble (one semester chosen from MusA 117, 118, 316, 317, 318, 365, 380) (two semesters of MusA 315, Accompanying, is reqd of students whose major performing medium is keyboard) 1-2

*Keyboard majors must pass the piano class proficiency exam or register for the appropriate level of piano class until the piano class proficiency exam is passed. Voice majors must register for piano class (or pass the proficiency exam) before enrolling in applied piano instruction; any combination of piano class or applied piano (MusA 114/314) should equal a minimum of six credits. If the major instrument is other than voice, a minimum of six credits is required in any combination of class voice (MusA 147-148) or applied voice (MusA 114/314).

MUSIC EDUCATION: INSTRUMENTAL (B.Mus.)

NOTE: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a GPA of 2.5. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of part four of this catalog.

Comprehensive Exit Exam. Students in this degree program take a comprehensive exam consisting of questions solicited from those faculty members who teach the respective music education courses. This exam is administered as a part of MusT 445, Proseminar in Music Teaching. Students are given the complete list of questions, from which the test questions will be drawn, at least three weeks before the announced date of the exam. The completed tests are evaluated by the music education faculty; where questions arise about the quality of one or more responses, the faculty member who submitted the question is asked for his or her input. Each student must successfully complete the comprehensive exam before being permitted to student teach. If unsuccessful, the student may repeat the test as many times as necessary to pass.

Required course work includes the university requirements (see regulation J-3) and:

MusA 124 Individual Instruction 8
MusA 324 Individual Instruction 6
MusA 145-146, 245-246 Piano Class 4
MusA 387, 487 Conducting I, II 4
MusA 490 Recital (half) 0
MusC 139-140, 239-240 Aural Skills 6
MusC 141-142, 241-242 Theory of Music 10
MusC 328 Instrumental & Choral Arranging 3
MusH 111 Introduction to Music 2
MusH 321, 322, 323 Music in Western Civilization 9
MusT 251, 253, 254, 255, 352 Instrumental Techniques 5
MusT 381 Elementary School Music Methods 3
MusT 383 Principles of Music Teaching 3
MusT 386 Instrumental Music in the Secondary School 2
MusT 432 Practicum: Music Teaching 14
MusT 445 Proseminar in Music Teaching 2
MusT 465 Jazz Band Rehearsal Techniques 1
MusT 466 Marching Band Techniques 1
MusT 467 Instrumental Literature for Public Schools 1
MusT 486 Instrumental Ensemble Rehearsal Techniques 1
MusX 140 Convocation (seven semesters) 0
Comm 101 Fundamentals of Public Speaking 2
ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
ED 312 Educational Psychology 2
ED 313 Educational Measurement 1

ED 314 Strategies for Teaching 3
EDTE 463 Literacy Methods for Content Learning 3
Psyc 101 Introduction to Psychology 3
Large ensembles (six different semesters)* 6
Other ensembles (two different semesters chosen from MusA 119, 121, 319, 320, 321, 322, 323, 365) (students whose major applied medium is keyboard must select MusA 315 to satisfy this requirement) 2
Electives to total 128 cr for the degree ..... —

*The large ensemble requirement must be completed in six different semesters; wind and percussion majors must register for three different semesters of MusA 119 or 319 and three different semesters of MusA 121, 320, or 321. Wind and percussion majors may, by audition, substitute two semesters of MusA 322 for 320 or 321. String majors must register for six different semesters of MusA 322. Wind, percussion, and string majors must have a total of four semesters of large ensemble participation (as defined above) at UI.

MUSIC EDUCATION: VOCAL-INSTRUMENTAL (B.Mus.)

NOTE: For registration in upper-division courses in education, students must have been admitted to the teacher education program and maintain a GPA of 2.5. For admission criteria, refer to "Admission to the Teacher Education Program" in the College of Education section of part four of this catalog.

Comprehensive Exit Exam. Students in this degree program take a comprehensive exam consisting of questions solicited from those faculty members who teach the respective music education courses. This exam is administered as a part of MusT 445, Proseminar in Music Teaching. Students are given the complete list of questions, from which the test questions will be drawn, at least three weeks before the announced date of the exam. The completed tests are evaluated by the music education faculty; where questions arise about the quality of one or more responses, the faculty member who submitted the question is asked for his or her input. Each student must successfully complete the comprehensive exam before being permitted to student teach. If unsuccessful, the student may repeat the test as many times as necessary to pass.

Required course work includes the university requirements (see regulation J-3) and:

MusA 114 Individual Instruction (voice) 2
MusA 124 Individual Instruction 8
MusA 145-146, 245-246 Piano Class 4
MusA 147-148 Voice Class 2
MusA 324 Individual Instruction 6
MusA 387, 487 Conducting I, II 4
MusA 490 Recital (half) 0
MusC 139-140, 239-240 Aural Skills 6
MusC 141-142, 241-242 Theory of Music 10
MusC 328 Instrumental & Choral Arranging 3
MusH 111 Introduction to Music 2
MusH 321, 322, 323 Music in Western Civilization 9
MusT 251, 253, 254, 255, 352 Instrumental Techniques 5
MusT 381 Elementary School Music Methods 3
MusT 383 Principles of Music Teaching 3
MusT 385 Choral Music in the Secondary School 2
MusT 386 Instrumental Music in the Secondary School 2
MusT 432 Practicum: Music Teaching 14
MusT 445 Proseminar in Music Teaching 2
MusT 465 Jazz Band Rehearsal Techniques 1
MusT 466 Marching Band Techniques 1
MusT 467 Instrumental Literature for Public Schools 1
MusT 485 Choral Ensemble Rehearsal Techniques 1
MusT 486 Instrumental Ensemble Rehearsal Techniques 1
MusX 140 Convocation (seven semesters) 0
Comm 101 Fundamentals of Public Speaking 2
ED 201 Diverse Learners in Schools & Social/Cultural Contexts 3
ED 312 Educational Psychology 2
ED 313 Educational Measurement 1
ED 314 Strategies for Teaching 3
EDTE 463 Literacy Methods for Content Learning 3
Psyc 101 Introduction to Psychology 3
Large ensembles (six different semesters)* 6
Large ensembles (two different semesters chosen from MusA 117, 316, 317) 2
Other ensembles (two different semesters chosen from MusA 119, 121, 319, 320, 321, 322, 323, 365) (students whose major applied medium is keyboard must select MusA 315 to satisfy this requirement) 2
Electives to total 128 cr for the degree ..... —

*The large ensemble requirement must be completed in six different semesters; wind and percussion majors must register for three different semesters of MusA 119 or 319 and three different semesters of MusA 121, 320, or 321. Wind and percussion majors may, by audition, substitute two semesters of MusA 322 for 320 or 321. String majors must register for six different semesters of MusA 322. Wind, percussion, and string majors must have a total of four semesters of large ensemble participation (as defined above) at UI.

Academic Minor Requirements

MUSIC MINOR

Note: Ensemble participation is recommended to meet the music electives requirement.

MusA 114 Individual Instruction 4
MusA 145-146 Piano Class 2
MusC 139-140 Aural Skills I-II 4
MusC 141-142 Theory of Music I-II 4
MusH 111 Introduction to Music 2
Select two courses from MusH 321, 322, 323 Music in Western Civilization 6
MusX 140 Convocation (2 semesters) 0
Music electives 4

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the School of Music. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Arts. General M.A. requirements apply. Applicants for the M.A. degree may concentrate in music history. A reading competency in one foreign language is required. Admission to the program is by permission of the music history faculty.

Master of Music. Applicants for the M.Mus. degree may concentrate in music education; performance (with degree patterns in keyboard, woodwinds, brass, percussion, strings, and voice); composition; piano pedagogy and performance studies; or accompanying. Admission to the M.Mus. program is by audition, interview, and/or submission of scores and tapes depending on the concentration selected. At least 18 semester hours of credit applicable toward the M.Mus. degree must be earned in residence on the Moscow campus.

Department of Naval Science

Phillip L. Sowa, Dept. Head (101 Navy Bldg. 83844-1122; phone 208/885-6333). *Faculty:* Bryan M. Farrens, Mark T. Jaszkowski, Brian F. Kowal, Christopher S. Manis, Phillip L. Sowa.

The Navy-Marine Corps Officer Education Program (NOEP) provides instruction and training for young men and women in preparation for being commissioned as officers in the United States Navy or Marine Corps through the Naval Reserve Officers Training Corps (NROTC). Students are designated as midshipmen and receive extensive academic, physical, and leadership training while pursuing a degree in a field of their choice from the university. Emphasizing sustained strong academic performance along with leadership and physical fitness training, the goal of NROTC is to develop each midshipman to his or her highest mental, moral, and physical capability in preparation for assuming a position of high trust and responsibility as a commissioned officer in the United States Naval Service.

Both scholarship and nonscholarship programs are offered in four-, three-, and two-year options. Application is normally made for four-year programs during the senior year in high school, however, students may apply directly to the professor of naval science for the College Program at the beginning of their freshman year. Application for the three- or two-year programs may be made during the student's freshman or sophomore year. Information concerning any of these programs may be obtained from the professor of naval science.

The Naval Science Program consists of 20 semester hours of professional naval courses covering subjects such as engineering, navigation, military organization, and leadership. Scholarship students must also complete all requirements for the Bachelor of Naval Science degree (see courses). All uniforms and naval science textbooks are provided.

Upon graduation, the midshipmen are commissioned as officers in the U.S. Navy or U.S. Marine Corps. All new officers receive orders to active duty and are assigned to a broad spectrum of communities such as aviation, surface warfare, submarines, Marine ground forces, or other specialized fields.

Scholarship Program. Scholarship benefits include tuition, fees, books, and $150 per month stipend. Initial selections are based on college entrance examination scores (SAT or ACT) and high school or college level academic performance.

A student on scholarship participates in three summer training cruises of four to six weeks duration. During the first cruise, students are introduced to the submarine, amphibious warfare, surface warfare, and aviation communities. The second and third cruises are aboard ships of the Pacific or Atlantic fleet and often include travel to Europe or the Far East. During summer cruises, the students receive one-half the pay of newly commissioned officers, room, and board. Graduates of this program are commissioned as active duty reserve officers in the Navy or Marine Corps.

College Program. Application for this program is made directly to the head of the Department of Naval Science. Students receive their uniforms and naval science textbooks at no cost and begin receiving a monthly $150 stipend at the beginning of their junior year. This program requires one training cruise during the summer following the junior year aboard a ship of the Pacific or Atlantic Fleet. During the cruise, students receive one-half the pay of newly commissioned officers, room, and board. College Program graduates are commissioned as active duty reserve officers. Also, College Program students may be nominated by the professor of naval science to receive a scholarship, beginning in the sophomore year. College Program students complete six credits of algebra and trigonometry, six credits of physical science, six credits of English composition, and three credits of introductory computer science in addition to naval science courses.

Marine Corps Option. Both male and female Scholarship and College Program students who desire a Marine Corps commission may apply for the Marine Corps Option during their first two years in college. Students taking this option enroll in specialized courses on Marine Corps subjects during their junior and senior years and participate in summer training at the Marine Corps Development and Education Center, Quantico, Virginia, during the summer following their junior year.

Nursing Option. A selected number of scholarships are available for the Navy Nursing Program. Nursing students spend one to two years studying naval science and other entry-level courses at the University of Idaho, then transfer to an accredited nursing school to complete their RN training. Lewis-Clark State College in Lewiston, Idaho, is available for nursing education in conjunction with UI Naval ROTC. Nurse option students participate in battalion activities, and also attend two summer training cruises during their college career. Graduates are commissioned as active duty reserve officers in the Navy.

Naval Science Institute. Navy-Marine Corps Scholarship and College Program applicants entering the program after completion of their sophomore year will be required to attend the Naval Science Institute (NSI) during the summer between their sophomore and junior years. At the NSI they will study the material taken by the four-year candidates during their freshman and sophomore years. On completion of the NSI, candidates return to the university and complete their junior and senior years of the naval science curriculum with their peers. Candidates in the two-year program will participate in one afloat cruise between their junior and senior years. Applications must be submitted no later than March of the sophomore year. The top NSI graduates are awarded scholarships for their last two years of college. The remaining graduates enter the College Program and receive those benefits.

Field Trips. Field trips to Navy and Marine Corps facilities are arranged periodically in order to allow the Navy-Marine Corps Officer Education Program members the opportunity to learn more about the naval service.

Courses

See part 6 for courses in Naval Science (NS).

Undergraduate Curricular Requirements

NAVAL SCIENCE (B.N.S.)

Required course work includes the university requirements (see regulation J-3) and:

NS 101 Introduction to Naval Science 2
NS 102, 201 Ships Systems I-II 6
NS 202 Seapower & Maritime Affairs 2
NS 301 Navigation 3
NS 302 Naval Operations 3
NS 401 Naval Organization & Management 2
NS 402 Naval Leadership 2
CS 112 Introduction to Problem Solving & Programming
or BuEd 111 Computer Skills 3
Math 170, 175 Analytic Geometry & Calculus I, II 8
Phys 211, 212 Engineering Physics I-II 8
One of the following courses 3
Hist 430 U.S. Diplomatic History
Hist 455 20th Century Europe
Hist 458 Military History
PolS 237 International Politics
PolS 438 Conduct of American Foreign Policy
PolS 449 World Politics & War

A student applying for the bachelor's degree in naval science must have completed at least 80 percent of the requirements toward another university degree, as approved by the dean of the college concerned.

A student in naval science who concurrently qualifies for both the B.N.S. degree and another university degree will be awarded only the other university degree.

The awarding of the B.N.S. degree is administered through the College of Letters and Science; however, the academic records of the student concerned remain with the college in which he or she is registered for the other baccalaureate degree.

Academic Minor Requirements

NAVAL SCIENCE MINOR

NS 101 Introduction to Naval Science 2
NS 102, 201 Ships Systems I, II 6
NS 202 Seapower & Maritime Affairs 2
Four to six courses from the following 10
NS 301 Navigation
NS 302 Naval Operations
NS 311 Evolution of Warfare
NS 401 Naval Organization & Management
NS 402 Naval Leadership
NS 412 Amphibious Operations

Nuclear Engineering

Steven G. Penoncello, Interim Program Director (125 Janssen Engr. Bldg. 83844-1011; phone 208/885-6479). *Faculty:* Thomas E. Carleson, Donald F. Elger, Joseph J. Feeley, E. Clark Lemmon, Alan G. Stephens.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Nuclear Engineering Committee. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. These degrees are offered only through the graduate program at the UI/Idaho Falls Center for Higher Education. Consult the center's bulletin for specific details.

Master of Science. General M.S. requirements apply.

Master of Engineering. General M.Engr. requirements apply.

Doctor of Philosophy. General Ph.D. requirements apply. Preliminary screening of candidates and program planning for those admitted are essential features of the Ph.D. program. Early in the program, the student must complete a qualifying examination, which will be oral and possibly written. The preliminary examination is taken after most of the course work is completed. This examination is generally limited to the areas of emphasis indicated by the student's dissertation topic and includes a presentation of the dissertation proposal; it will be written and oral. No foreign language is required; however, the program does require a satisfactory level of achievement in mathematics and numerical analyses and in computer programming.

Department of Philosophy

Kathryn Paxton George, Dept. Chair (407 Morrill Hall 83844-3016; phone 208/885-7107; http://www.ls.uidaho.edu/Phil). *Faculty:* Janice Capel Anderson, Kathryn Paxton George, Nicholas F. Gier, Douglas Lind, Michael O'Rourke. *Adjunct Faculty:* Raymond Dacey, James A. Foster. *Affiliate Faculty:* James H. Austin, Ken W. Clark, Kip W. Jenkins, Sharon Kehoe, Kurt Torell.

Philosophy examines the grounds of knowledge, the nature of reality, and the nature of value, justice, and morality. It asks fundamental questions about how we reason and how we ought to reason. Its subject matter encompasses all the other academic disciplines, indeed all areas of human experience—society, values, mind, language, art, and science.

The main value of philosophy lies in its contribution to a liberal education. As a central discipline of the humanities, philosophy encourages those who study it to gain insight into themselves and others—insight that proves helpful in setting high standards and working in productive collaboration with one's associates. In addition, philosophy is an excellent means of learning to reason and write clearly—skills useful in every conceivable human enterprise, now or in the future. Some philosophy majors pursue careers in academia; others, however, make rewarding careers for themselves in business, government, journalism, law, and human services.

Courses

See part 6 for courses in Philosophy (Phil).

Undergraduate Curricular Requirements

PHILOSOPHY (B.A. or B.S.)

Note: Students who intend to do graduate work are advised to take the Bachelor of Arts degree.

The electives in philosophy and related fields are to be selected with the approval of the chair of philosophy.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Phil 103 Ethics 3
Phil 201 Critical Thinking or Phil 202 Intro to Symbolic Logic 3
Phil 240 Belief & Reality 3
Phil 309 History of Ancient Philosophy 3
Phil 310 History of Modern Philosophy 3
Phil 490 Senior Seminar 3
Philosophy electives (upper-division; must include at least
one course in non-Western thought) 12
Related fields (humanities, social sc, and sc) 20

Academic Minor Requirements

PHILOSOPHY MINOR

Phil 103 Ethics or 201 Critical Thinking or 202 Intro to
Symbolic Logic or 240 Belief & Reality 3
Phil 309 History of Ancient Philosophy 3
Phil 310 History of Modern Philosophy 3
Three upper-division philosophy courses 9

RELIGIOUS STUDIES MINOR

See the Religious Studies section for details on this minor.

Department of Physics

Rex Gandy, Dept. Chair (311A Engineering/Physics Bldg. 83844-0903; phone 208/885-6380; e-mail henryw@uidaho.edu; http://www.uidaho.edu/LS/Phys). *Faculty:* Philip A. Deutchman, Rex Gandy, Ruprecht Machleidt, David N. McIlroy, George Patsakos, Francesca Sammarruca-Machleidt, Bernhard J. Stumpf, Henry Willmes, Wei Jiang Yeh.

Physics is the scientific study of the nature and behavior of matter and energy. On the basis of quantitative observations, physicists develop theories to describe the observed behavior. Further experiments and observations are used to verify or refine the theories. The scientific method demands logical and mathematical rigor. The wealth of applications of physics to technology appeals to pragmatic persons, yet physics has much greater similarity to the arts and humanities than is commonly realized, because of the intellectual curiosity and creativity on which it is built.

The physics program at UI introduces students in technical and nontechnical curricula alike to the scientific method and to physical laws. The B.A. and B.S. curricula in physics emphasize a broad liberal-arts education and the core subjects in physics. Many B.A. and B.S. recipients go on to graduate study in physics or related disciplines.

Training in the theory, history, and philosophy of physics is provided by the required core courses and electives in most of the major areas of specialization. Formal laboratory courses and directed research familiarize students with experimental techniques, modern instrumentation, and computers. Equipment in the department's research laboratories includes low-temperature, strong magnetic field, high-vacuum, and vapor deposition facilities, electron and atomic beam apparatus, a plasma torch, various lasers, spectrometers, optical

telescopes, and nuclear radiation detectors. All offices, laboratories, and classrooms have computer network connections. The program is supported by a machine shop and an electronics shop. Collaborations with other universities and research institutes provide access to an even wider range of facilities.

The department offers graduate curricula leading to the M.S., M.A.T., and Ph.D. degrees. A bachelor's degree in physics is normally required as preparation for graduate study. Students with a bachelor's degree in another physical science, engineering, or mathematics will generally qualify after removal of a few upper-division-level deficiencies. A major in secondary education with specialization in physical science and mathematics is suitable preparation for the M.A.T. curriculum.

Research in the Department of Physics emphasizes the areas of condensed matter physics, nuclear physics, quantum optics, and spectroscopy. In addition, there is an interest in research on physics teaching.

The M.S. is not a prerequisite for the Ph.D., but beginning doctoral students may earn the M.S. if they wish. General departmental course requirements exist for the M.S., M.A.T., and Ph.D. degrees, in addition to the general requirements of the Graduate College. Other course requirements are specified in the student's study plan, developed by the student and his or her adviser and approved by the student's supervisory committee. All graduate students are encouraged to gain some teaching experience during the course of their graduate studies.

Faculty members in the department will be happy to discuss programs in detail with interested persons. Requests for information or a tour of the facilities can be made by a letter, e-mail, or telephone call (208/885-6380) to the department.

Courses

See part 6 for courses in Physics (Phys).

Undergraduate Curricular Requirements

PHYSICS (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Phys 211, 212, 213 Engineering Physics I, II, III	12
Phys 310 Introduction to Relativity	2
Phys 315 Introduction to Modern Physics	3
Phys 321-322 Analytical Mechanics	6
Phys 341-342 Electromagnetic Fields I-II	6
Phys 351 Elementary Quantum Mechanics	3
Phys 371 Mathematical Physics	3
Chem 111 Principles of Chemistry I	4
Chem 113 Inorganic Chem & Qual Analysis or 112 Prin of Chem II	4-5
Math 170, 175, 275 Analytic Geometry & Calculus	11
Mathematics (upper-division)	6
And, for the B.A. only:	
Upper-division physics courses (incl at least 4 cr of lab)	9
And, for the B.S. only:	
Upper-division physics courses (incl at least 4 cr of lab)	15

Academic Minor Requirements

PHYSICS MINOR

Phys 211, 212 Engineering Physics I, II	8
Phys 213 Engineering Physics III or Engr 210 Engineering Statics	3-4
Physics courses numbered 300 or above (usual prerequisites are Math 170, 175, and 275)	12

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Physics. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. General M.S. requirements for a degree with thesis apply. The student must complete a total of at least 30 credits, 20 of which must be at the graduate level, including a maximum of 10 credits in research and thesis. Specific departmental graduate course requirements are 2 credits in Phys 501 and Phys 521, 541-542, and 551. If a student's undergraduate preparation is considered deficient (e.g., if it lacks laboratory experience at the upper-division level), then certain undergraduate courses will be required in the study plan.

Students must pass a comprehensive examination, which must be taken at the first offering after the student has completed the core courses required for the M.S. degree. Full-time students may not delay the completion of their core course requirements by avoiding the taking of a core course when offered except with the prior written consent of the Academic Standards Committee and the student's major professor. The examination is written and covers all of general graduate-level physics as defined by the required courses for the M.S. degree. Typically, it will be administered on two different days, with a time limit of approximately three hours for each day. The results of the examination will be evaluated by the physics faculty. If the comprehensive examination is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three nor more than 14 months following the first attempt.

A final defense of the M.S. thesis is scheduled upon completion of the thesis. Full-time students have to take this examination no later than two years after passing the comprehensive examination. The candidate is required to defend his or her work and show a satisfactory knowledge of the field in which the thesis research has been performed. The defense is oral and would typically last for one hour. The exam has to be announced to the physics faculty at least one week in advance. All members of the physics faculty are permitted to attend and ask questions. A recommendation of a majority of the student's graduate committee is necessary to pass the defense. If the defense is failed, it may be repeated only once; the repeat defense must be taken within a period of not less than three months nor more than one year following the first attempt.

Master of Arts in Teaching. General M.A.T. requirements apply.

Doctor of Philosophy. General Ph.D. requirements apply. Correspondence concerning the student's specific goals is encouraged in the preliminary planning of the Ph.D. program.

Specific departmental course requirements are: Phys 501, 511, 521, 531, 541-542, 551-552, 571, and at least nine additional semester-hours of physics courses at the 500 level. A typical study plan would include 40 to 50 credits of course work at the 500 level in physics and about 30 credits in research and thesis. The study plan also would include at least six units of upper-division or graduate course work outside of physics. The nature and number of these additional units will depend upon the professional goals of the individual student. In planning a program, the student should consult with the departmental Academic Standards Committee for approval of any particular choice of nonphysics course work. The Ph.D. degree in physics is primarily a recognition of ability and accomplishment in research. The purpose of the course work is to provide the factual and theoretical background for research. Successful completion of course work is not in itself considered as completion of the major requirement for the degree.

No formal foreign language requirement exists for Ph.D. candidates; however, in individual cases, depending on the research topic, a reading knowledge in one foreign language may be required by the thesis adviser.

A two-part preliminary examination is required. Part I is taken after the student has completed the courses required for the Ph.D. degree. Full-time students have to take this exam no later than 28 months after entering the graduate program. The examination is written and covers all of general graduate-level physics as defined by the required courses for a Ph.D. degree. Typically, it will be administered on two different days, with a time limit of approximately five hours for each day. The results of the examination will be evaluated by the physics faculty. If the preliminary examination, part I, is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months nor more than 14 months following the first attempt.

Part II of the preliminary examination is set by the major professor of the Ph.D. student for a date within six months after part I has been passed. The student is required to explain the goals of his or her planned Ph.D. research to the thesis committee and show general familiarity with the fields relevant for the research. Part II is oral and would typically last for one hour. The exam is to be announced to the physics faculty at least one week in advance. All members of the physics faculty are permitted to attend and ask questions. The student's committee certifies to the Graduate College the results of the preliminary examinations. Upon passing, the student is advanced to candidacy for the Ph.D. degree. If part II is failed, it may be repeated only once; the repeat examination must be taken within a period of not less than three months nor more than one year following the first attempt.

A final defense of the Ph.D. thesis is scheduled upon completion of the dissertation. The candidate is required to defend his or her work and show a superior knowledge of the field in which the thesis research has been performed. The defense is oral and would typically last for one hour. The exam is to be announced to the physics faculty at least one week in advance. All members of the physics faculty are permitted to attend and ask questions. A recommendation of a majority of the student's graduate committee is necessary to pass the defense. If the defense is failed, it may be repeated only once; the repeat defense must be taken within a period of not less than three months nor more than one year following the first attempt.

Department of Plant, Soil, and Entomological Sciences

Michael J. Weiss, Dept. Head (242 Iddings Wing, Ag. Sc. Bldg. 83844-2339; phone 208/885-6277; pseshead@uidaho.edu).

Entomology Division: **James B. Johnson, Division Chair; Craig R. Baird, James D. Barbour, Edward J. Bechinski, Nilsa A. Bosque-Pérez, Sanford D. Eigenbrode, James B. Johnson, Marc J. Klowden, Joseph P. McCaffrey, Thomas M. Mowry, Larry E. Sandvol, Robert L. Stoltz, Karen Strickler, Michael J. Weiss.**

Plant Pathology Division: **Philip H. Berger, Division Chair; Philip H. Berger, Wesley W. C. Chun, Louise-Marie Dandurand, Robert L. Forster, John J. Gallian, S. Krishna Mohan, Phillip Nolte, Maurice V. Wiese.**

Plant Science Division: **Jeffrey C. Stark, Division Chair; Danny L. Barney, Jack Brown, W. Michael Colt, Robert B. Dwelle, Esmaeil Fallahi, Bradley D. Geary, Jeffrey D. Griffin, Stephen O. Guy, Saad L. Hafez, Pamela J. Hutchinson, Gale E. Kleinkopf, Stephen L. Love, Don W. Morishita, Nora L. Olsen, Larry D. Robertson, Glenn E. Shewmaker, Shree P. Singh, Edward J. Souza, Jeffrey C. Stark, Donald C. Thill, Robert R. Tripepi, Robert S. Zemetra.**

Soil Science Division: **Matthew J. Morra, Division Chair; Bradford D. Brown, Paul D. Brown, John E. Hammel, Guy R. Knudsen, Robert L. Mahler, Paul A. McDaniel, Matthew J. Morra, Daniel G. Strawn.**

The Department of Plant, Soil, and Entomological Sciences, within the College of Agriculture, offers B.S. degrees in entomology, plant science, and soil science.

The challenge for today's agriculture is to provide the world with food and fiber while protecting the environment. Students develop skills needed for professional careers in crop production, plant maintenance, pest control, biotechnology, biological control of insects, weeds, and diseases, and preservation of soil, water, and air quality.

The **entomology** major emphasizes both basic and applied aspects of the study of insects and how they influence human activities. The program provides a broad entomological education with opportunities to specialize in such areas as agricultural and aquatic

entomology, biological control, host plant resistance, insect ecology, physiology, and insect-plant relations. The curriculum is designed for students pursuing professional careers in the basic and applied fields of entomology, or for those interested in continuing their education at the graduate level.

Graduate work in entomology is offered in the following specialized areas: agricultural entomology, biological control of insects and weeds, insect biology, insect ecology, insect-plant interactions, insect anatomy and physiology, insect transmission of plant viruses, plant resistance to insects, systematic entomology, and integrated pest management. Graduate students have access to one of the Pacific Northwest's outstanding insect collections and comprehensive entomological libraries.

The **horticulture** major is designed for students who are interested in professional careers in the sciences of plant physiology, pathology, breeding, weed control, and crop production. It is recommended for students interested in further study in plant sciences at the graduate level or interested in laboratory work. Students interested in professional careers in postharvest physiology and related industries can tailor their horticulture curriculum to meet individual needs and interests.

Under the **plant science** degree, students can study landscape horticulture, crop management, crop science, and plant protection. Many courses emphasize environmental concerns, ecological relationships, and sustainability of agricultural systems. Students can choose either a science option or a management option.

The science option is recommended for students interested in graduate study in plant sciences or interested in research work. It is designed for those who would like to pursue professional careers in the sciences of plant physiology, pathology, breeding, weed control, and agronomic or horticultural production. Students can tailor their plant science curriculum to meet individual needs and interests.

The management option is for students who are interested in field crop consulting, pest management, or in the management and operation of commercial nurseries, greenhouses, landscapes, recreational parks, and related industries. The curriculum includes courses in basic sciences emphasizing the production and management of crops or horticultural systems that are economically significant to Idaho and the nation. Completion of this curriculum provides the student with the general knowledge necessary for positions in the chemical, fertilizer, and seed industries, or as farm or nursery managers, and as cooperative extension agents. This program can also lead to advanced degree studies.

Graduate work in plant science is offered in the following specialized areas: insect plant pathology, plant breeding and genetics, plant physiology, weed science, crop management, and horticulture, including ornamentals and postharvest physiology. Graduate majors in plant pathology can specialize in virology, epidemiology, bacteriology, molecular biology, nematology, and biological control.

The undergraduate **soil science** degree program is offered for students who are interested in businesses and industries associated with soils and farm chemicals, as professional soil scientists working with the formation, classification, chemistry, physics, and fertility of valuable soil resources, or as environmental scientists in conserving or improving soil and water quality. Courses in geology, botany, chemistry, and physics, in addition to soils, are stressed.

Graduate students in soil science may concentrate in soil specialty areas such as soil physics, chemistry, biology, fertility, or soil genesis and morphology. A graduate program may focus on a wide variety of soil-related issues such as water quality, soil quality, remediation of soils contaminated by organic or inorganic pollutants, precision agriculture, soil and water conservation issues, and plant nutrition.

The degree offerings are designed to prepare students for a variety of rewarding career opportunities. Each of these degree programs is based on a curriculum designed to prepare students for present and future employment. The department offers students the opportunity to work closely with faculty in classroom and field situations. The faculty members provide wide educational experiences for students who major in this department. Formal courses are offered as needed to serve the students in the various degree programs, and additional specialization may be obtained by enrolling in directed study, special topics, seminar, and other courses, with particular faculty members. An internship program also is available to provide students with practical job experience and to open doors for career opportunities.

For advanced studies, specially equipped laboratories for histology, anatomy, and physiology and greenhouse laboratory units with controlled temperature and light programmed rooms and growth chambers are available. The university has 1,145 acres for field crops, orchards, and livestock located close to campus. Excellent field and laboratory facilities are also available at research and extension centers at Aberdeen, Parma, and Twin Falls. Additionally, the graduate program is closely coordinated with the Departments of Entomology, Crop and Soil Sciences, Horticulture and Landscape Architecture, and Plant Pathology at Washington State University (eight miles away), enhancing the department's offerings.

Faculty members are concerned with the needs and interests of individual students. Questions regarding programs, arrangements, or facilities are welcome. Prospective majors in entomology, plant science, or soil science should consult the department head in Room 242, Agricultural Science Building, or telephone 208/885-6276.

Courses

See part 6 for courses in Entomology (Ent), Plant Science (PlSc), and Soils (Soil).

Undergraduate Curricular Requirements

ENTOMOLOGY (B.S.Ent.)

Designed for students who desire professional careers in the basic and applied fields of entomology (insect taxonomy, ecology, physiology, and agriculture, aquatic, and forest entomology).

Required course work includes the university requirements (see regulation J-3) and:

Ent 211 General Entomology 4
Ent 322 Economic Entomology 3
Ent 440 Insect Identification 4
Ent 484 Insect Anatomy & Physiology 4
Biol 201 Introduction to the Life Sciences 4
Biol 202 General Zoology 4
Biol 203 General Botany 4
Biol 331 General Ecology 3
Biol 351 General Genetics 3
Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Engl 313 Business Writing or 317 Tech & Engr Report Writing 3
MMBB 250 General Microbiology 5
PlSc 405 Plant Pathology 4
Stat 251 Principles of Statistics 3
Entomology electives 5
Life sciences electives 11
Mathematics electives 4
Physics electives 3
Humanities and social sciences electives 14
Electives to total 132 cr for the degree ..... —

Courses strongly recommended:

Ent 491 Principles of Insect Pest Management 3
Bot 241 Systematic Botany 3
CS 101 Introduction to Computer Science 3
Math 170 Analytic Geometry & Calculus I 4
MMBB 380 Introductory Biochemistry 4
Zool 484 Invertebrate Zoology 4

HORTICULTURE (B.S.Pl.Sc.)

Students in the horticulture curriculum can study management of horticultural crops and systems, with an emphasis on environmental awareness and protection of natural resources. Basic or applied aspects of horticulture can be studied in the curriculum.

Required course work includes the university requirements (see regulation J-3) and:

PlSc 102 The Science of Plants in Agriculture 3
PlSc 338 Weed Control 3
PlSc 398 Internship or PlSc 399 or 499 Directed Study 3
PlSc 400 Seminar 1
PlSc 405 Plant Pathology 4
PlSc 438 Pesticides in the Environment 3
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Bot 241 Systematic Botany 3
Bot 311 Plant Physiology 4
Chem 101 Intro to Chemistry I or 111 Principles of Chemistry I 4
Chem 275, 276 Carbon Compounds & Lab or
Chem 277, 278 Organic Chemistry I & Lab 4
Comm 101 Fundamentals of Public Speaking 2
Ecology elective 2-3
Engl 313 Business Writing or 317 Technical & Engr Report Writing 3
Ent 322 Economic Entomology or 211 General Entomology 3-4
Gene 314 General Genetics 3
Math 143 Pre-calculus Algebra & Analytic Geom or 160 Survey of Calculus 3-4
MMBB 154, 155 Introductory Biology of Bacteria & Viruses or
250 General Microbiology 4-5
Soil 205, 206 General Soils & Lab 4
Soil 446 Soil Fertility 3
Stat 251 Principles of Statistics 3
Horticulture electives (PlSc 202, 234, 301, 310, 311, 313, 320, 321, 340, 341, 418, 430, 431, 433, 464, 480) (minimum credits) 15
Approved supporting courses (biology, botany; agricultural economics, business law, business, economics, accounting, law; chemistry; computer-related; entomology; forestry; landscape architecture; molecular biology/biochemistry; physics; plant science; or soils) 18
Electives to total 128 cr for the degree ..... —

PLANT SCIENCE (B.S.Pl.Sc.)

Under the plant science degree, students can study landscape horticulture, crop management, crop science, and plant protection. Students can choose either a science option or a management option.

Required course work includes the university requirements (see regulation J-3) and:

PlSc 102 The Science of Plants in Agriculture 3
PlSc 338 Weed Control 3
PlSc 400 Seminar 1
PlSc 405 Plant Pathology 4
PlSc 438 Pesticides in the Environment 3
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Bot 311 Plant Physiology 4
Comm 101 Fundamentals of Public Speaking 2
Engl 313 Business Writing or 317 Tech & Engr Report Writing 3
Gene 314 General Genetics 3
MMBB 380, 382 Introductory Biochemistry & Lab 5
Soil 205, 206 General Soils & Lab 4
Stat 251 Principles of Statistics 3
Computer science elective 3
Ecology elective 3
Humanities and social sciences electives 14
Science approved electives (upper-division plsc, bot, ent, soils) 13

And one of the following options:

A. SCIENCE OPTION

The science option is recommended for students interested in graduate study or research work directed toward professional careers in the sciences of plant physiology, pathology, breeding, weed control, and agronomic or horticultural production.

Chem 111 Principles of Chemistry I 4
Chem 113 Inorganic Chemistry & Qualitative Analysis 5

Chem 253 Quantitative Analysis 5
Chem 275, 276 Carbon Compounds & Lab or 277, 278 Organic Chem & Lab 4
Ent 211 General Entomology 4
Math 160 Survey of Calculus 4
MMBB 250 General Microbiology 5
Phys 111 General Physics I 4
Agricultural economics/economics elective 3
Electives to total 132 cr for the degree ..... —

B. MANAGEMENT OPTION

The management option is for students who are interested in field crop management, pest management, or in the management and operation of commercial nurseries, greenhouses, landscapes, recreational parks, and related industries.

Chem 101 Introduction to Chemistry I 4
Chem 275, 276 Carbon Compounds & Lab 4
Ent 322 Economic Entomology 3
Math 143 Pre-calculus Algebra & Analytical Geom or Stat 150 Intro to Statistics 3
MMBB 154, 155 Introductory Biology of Bacteria & Viruses & Lab 4
Bus, econ, acctg, law, mgt electives 13
Internship or directed study 3
Physics elective 3
Electives to total 132 cr for the degree ..... —

SOIL SCIENCE (B.S.Soil Sc.)

This degree prepares students for a wide variety of professional careers in challenging areas including (a) food and fiber production, (b) environmental protection, such as water quality, waste management, environmental cleanup, and soil conservation, and (c) land resource allocation and management in various ecosystems. Graduates are prepared for employment by agencies and companies such as agricultural consulting firms, farm chemical manufacturers and dealers, state and federal land and water resource organizations, waste management and environmental consulting firms, and graduate school. Graduates from the degree will apply for certification as Associate Professional Soil Scientists through the Federation of Certifying Boards in Agriculture, Biology, Earth, and Environmental Sciences (ARCPACS).

Required course work includes the university requirements (see regulation J-3) and:

Soil 205, 206 General Soils & Lab 4
Soil 415 Soil Physics 3
Soil 422 Chemistry of Soil Environment 3
Soil 437 Soil Biology or 425 Microbial Ecology 3
Soil 446 Soil Fertility 3
Soil 447 Soil Fertility Management or 438 Pesticides in the Environment 3
Soil 454 Soil Development & Classification 3
Soil 499 DS: Professional Certification 1
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Chem 111 Principles of Chemistry I 4
Chem 112 Prin of Chem II or 113 Inorganic Chemistry & Qualitative Analysis 4-5
Chem 253 Quantitative Analysis 5
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
CS 101 Intro to Computer Sc or 112 Intro to Problem Solving & Programming 3
Engl 317 Technical & Engineering Report Writing 3
Geol 101 Physical Geology 4
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus I 4
MMBB 250 General Microbiology 5
Phys 111-112 General Physics I-II 8
Stat 251 Principles of Statistics 3
Electives to total 128 cr for the degree ..... —

Academic Minor Requirements

CROP SCIENCE MINOR

Ent 211 General Entomology 4
PISc 102 The Science of Plants in Agriculture 3
PISc 405 Plant Pathology 4
PISc 407 Field Crop Production 3
Soil 205, 206 General Soils & Lab 4
Courses selected from the following 3
- PISc 308 Forage & Grassland Management
- PISc 401 Crop Physiology
- PISc 446 Plant Breeding
- PISc 469 Seed Production
- PISc 490 Potato Science

ENTOMOLOGY MINOR

Ent 211 General Entomology 4
Ent 322 Economic Entomology 3
Ent 440 Insect Identification 4
Ent 484 Insect Anatomy & Physiology 4
Courses selected from the following 3
- Ent 443 Insect Ecology
- Ent 445 Insect-Plant Interactions
- Ent 446 Host Plant Resistance to Insects & Pathogens
- Ent 447 Fundamentals of Biological Control
- Ent 448 Medical Entomology
- Ent 472 Aquatic Entomology
- Ent 491 Principles of Insect Pest Management

HORTICULTURE MINOR

PISc 102 The Science of Plants in Agriculture 3
PISc 202 Plant Propagation 3
Three of the following courses 9
- PISc 310 Pomology
- PISc 320 Olericulture—Commercial Vegetable Crops
- PISc 340 Nursery Management
- PISc 464 Landscape Maintenance

Two of the following courses 5-8
- PISc 234 Controlled Environments for Horticultural Production
- PISc 405 Plant Pathology
- Gene 314 General Genetics
- LArc 288 Plant Materials I
- Soil 205, 206 General Soils & Lab

PLANT PROTECTION MINOR

Ent 211 General Entomology 4
Ent 491 Principles of Insect Pest Management 3
PISc 338 Weed Control 3
PISc 405 Plant Pathology 4
Courses selected from the following 4-6
- Ent 322 Economic Entomology
- Ent 447 Fundamentals of Biological Control
- Ent 451 Applied Biological Control: Weeds
- Ent 452 Applied Biological Control: Arthropod Pests
- Ent 453 Applied Biological Control: Microbial Control
- PISc 410 Biology of Weeds

SOIL SCIENCE MINOR

Soil 205, 206 General Soils & Lab 4
Soil 415 Soil Physics 3
Soil 422 Chemistry of Soil Environment 3
Soil 446 Soil Fertility 3
Soil 454 Soil Development & Classification 3
Courses selected from the following to total at least 18 cr for the minor 0-2
- Soil 437 Soil Biology
- Soil 447 Soil Fertility Management

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Plant, Soil, and Entomological Sciences. See the College of Graduate Studies section of part 4 for general requirements applicable to each degree.

Master of Science—Major in Entomology. Thesis and nonthesis options are offered. Admission to graduate programs in entomology requires an undergraduate degree, usually in some field of biology. Specific requirements for each degree are determined by the student's graduate committee. Candidates for the M.S. with zoology or entomology course deficiencies in their undergraduate program may be required to list those courses as deficiencies on their M.S. program.

Master of Science—Major in Plant Science or Soils (Thesis Option). General M.S. requirements apply. These requirements include a formal program of at least 30 semester hours to be chosen in consultation with the major professor and approved by the student's supervisory committee. Candidates for this degree must complete an independent research project and submit an acceptable thesis as well as pass a final oral examination.

Master of Science—Major in Plant Science or Soils (Nonthesis Option). General M.S. nonthesis requirements apply.

Doctor of Philosophy—Major in Entomology. The student chooses a major professor with the concurrence of the faculty member involved. This choice is based upon the availability of the faculty member and the compatibility of the student's research interests with those of the professor. University Ph.D. requirements apply. Additional specific requirements are determined by the student's graduate committee.

Doctor of Philosophy—Major in Plant Science or Soils. General Ph.D. requirements apply. Specific requirements are determined by the student's supervisory committee and the graduate faculty of the department.

Department of Political Science

Donald W. Crowley, Chair, Dept. of Political Science and Public Affairs Research (205 Admin. Bldg. 83844-3165; phone 208/885-6328). *Faculty:* Lisa J. Carlson, Donald W. Crowley, Florence A. Heffron, Robert A. Hoover, William R. Lund, Alwyn R. Rouyer, Christopher C. Stream, Jack E. Vincent, Patrick R. Wilson.

Political science is the study of politics, the process of gaining, maintaining, and exercising governmental power in the United States, in other countries, and internationally. The political science major at UI provides students with a wide selection of courses in American and comparative politics, international relations, public law, public administration, and political theory. Students may choose either a Bachelor of Arts or Bachelor of Science degree program.

The department is committed to teaching excellence. Most of the introductory courses are taught by full-time faculty and all of the faculty are readily available in their offices for discussion and guidance. The department stresses the opportunity to take small classes and to interact with other students and faculty. The diversity of the faculty's intellectual pursuits and concern for students makes these courses interesting and ensures that, whatever the students' interests, from Middle Eastern politics to the American presidency, from the study of environmental politics to political violence and revolution, there is a scholar in the department who can teach the subject to them.

Students are encouraged to participate directly in the political process through internships in federal, state, and local government or on political campaigns. UI students have participated

in internships with the Idaho state legislature, the Idaho Governor's office, and Idaho's U.S. senators and representatives in Washington, D.C. Other students have interned with local governments throughout the state and for federal agencies such as the State Department, and have worked on political campaigns for candidates for offices at all levels of government.

After graduation UI students find that their degree in political science opens the door to a wide variety of careers. Many students pursue careers in law. Others attend graduate school and prepare for careers in federal or state governments, as city managers or administrators, or as teachers. Some graduates choose to work with public interest groups, trade associations, and environmental groups; or eventually run for, and win, elective political office. Still other graduates find that their knowledge of politics and the skills they acquire to analyze complex institutions are excellent preparation for a career in journalism. Finally, business institutions are employing more and more political science graduates because of their ability to communicate with precision and vigor, their familiarity with large organizations and complex decision making processes, as well as their understanding of how foreign and domestic governmental institutions and U.S. multi-national corporations function in an interdependent world.

Courses

See part 6 for courses in Political Science (PolS).

Undergraduate Curricular Requirements

POLITICAL SCIENCE (B.A.)

The B.A. degree emphasizes a traditional liberal arts education including a 16-credit foreign language requirement. The course work also includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and:

PolS 101 Intro to Political Science & American Government 3
PolS 235 Political Research Methods & Approaches 3
PolS 425 or 426 History of Political Philosophy I or II 3
PolS 495 Senior Seminar in Political Science (requires senior standing) 3
Stat 251 Principles of Statistics 3
Other courses in political science (including a minimum of 17 credits in upper-division courses and at least 6 credits in each of the following areas: (1) American government/public law/public administration and (2) comparative/international politics) 23
Courses in upper-division related fields 20

Note: A maximum of 6 credits of political science internship and/or directed study courses may be counted toward meeting the political science credit requirements.

POLITICAL SCIENCE (B.S.)

The B.S. degree emphasizes methodology and requires increased course work in behavioral research methods. Course work also includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and:

PolS 101 Intro to Political Science & American Government 3
PolS 235 Political Research Methods & Approaches 3
PolS 425 or 426 History of Political Philosophy I or II 3
PolS 495 Senior Seminar in Political Science (requires senior standing) 3
Stat 251 Principles of Statistics 3
Other courses in political science (including a minimum of 17 credits in upper-division courses and at least 6 credits in each of the following areas: (1) American government/public law/public administration and (2) comparative/international politics) 23
Research methods (may be counted as related field cr if upper-division) 6
Courses in upper-division related fields 20

Note: A maximum of 6 credits of political science internship and/or directed study courses may be counted toward meeting the political science credit requirements.

Academic Minor Requirements

AMERICAN GOVERNMENT/PUBLIC LAW MINOR

PolS 101 Intro to Political Science & American Government 3
Six courses from the following areas (at least 6 credits in each area) 18

American Government
- PolS 275 American State & Local Government
- PolS 428 American Political Thought
- PolS 431 American Political Parties & Elections
- PolS 432 American Congress
- PolS 433 American Political Culture
- PolS 437 American Presidency
- PolS 439 Public Policy
- PolS 451 Public Administration
- PolS 462 Natural Resource Policy
- PolS 464 Politics of the Environment
- PolS 465 Politics & the Economy
- PolS 471 Intergovernmental Relations

Public Law
- PolS 429 Contemporary Political Ethics
- PolS 452 Administrative Law & Regulation
- PolS 460 Law & Society
- PolS 467 Constitutional Law
- PolS 468 Civil Liberties
- PolS 469 The Judicial Process

Note: Approved political science seminars may be substituted in this minor.

COMPARATIVE/INTERNATIONAL POLITICS MINOR

PolS 205 Introduction to Comparative Politics 3
PolS 237 International Politics 3
Five courses in the following areas (at least 3 credits in each area) 15

Comparative Politics
- PolS 380 Canadian Political System
- PolS 381 Western European Politics
- PolS 480 Politics of Development
- PolS 482 Latin American Politics
- PolS 483 Middle Eastern Politics
- PolS 484 Politics of India & Subcontinent
- PolS 485 African Politics

International Politics
- PolS 438 Conduct of American Foreign Policy
- PolS 440 International Organizations & International Law
- PolS 449 World Politics & War
- PolS 487 Political Violence & Revolution

Note: Approved political science seminars may be substituted in this minor.

POLITICAL SCIENCE MINOR

PolS 101 Intro to Political Science & American Government 3
PolS 425 History of Political Philosophy I or 426 History of Political Philosophy II or 428 American Political Thought 3
Three courses in American government/public law/public administration (only one course may be lower division) 9
Two courses in comparative/international politics (only one course may be lower division) 6

Note: Approved political science seminars may be substituted in this minor.

PUBLIC ADMINISTRATION AND POLICY MINOR

PolS 101 Intro to Political Science & American Government 3
PolS 275 American State & Local Government 3
PolS 451 Public Administration 3
Four courses from the following 12
- PolS 439 Public Policy
- PolS 452 Administrative Law & Regulation
- PolS 454 Public Organization Theory
- PolS 462 Natural Resource Policy
- PolS 464 Politics of the Environment
- PolS 465 Politics & the Economy
- PolS 471 Intergovernmental Relations
- PolS 472 Local Government Politics & Administration

Note: Approved political science seminars may be substituted in this minor.

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Political Science and Public Affairs Research. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Arts. General College of Graduate Studies M.A. requirements for application must be followed. Applicants must also submit three letters of recommendation and a 300-500 word statement of purpose directly to the Department of Political Science.

Master of Public Administration. Although no specific undergraduate preparation is required for the M.P.A., all students must complete the following prerequisites before completion of the program: six credits in American national and state government; six credits in sociology, economics, or psychology; and three credits in accounting, computer science, or statistics.

For the minimum of 30 credits required for the M.P.A. degree, the student may use credits earned in approved courses taken at any of the cooperating universities (University of Idaho, Idaho State University, and Boise State University). The student's supervisory committee, which must include at least one professor from a discipline or university other than that of the major professor, is responsible for approving the student's program.

At least 21 credits are required in core areas: (1) PolS 451, Public Administration; (2) three courses, one from each of the following: administrative theory, organization, and behavior; public management techniques; and public policy and policy analysis; (3) two courses, one from each of two of these five areas: administrative law; executive and administrative process; intergovernmental relations; community and regional planning; and comparative public administration; (4) a sixth course, from any of the above areas.

At least 12 credits are required in an area of emphasis. (Currently, the approved fields are: general public administration; community, state, and regional planning; criminal justice administration; environmental and natural resources administration; local government administration; public finance, budgeting, and administrative management; and public works engineering.) Students may select a thesis or nonthesis option. The preparation and oral defense of the thesis count as six credits in the area of emphasis. The nonthesis option requires oral and written exams in all areas of public administration studies.

In addition to the required 30 credits, a six-credit public service internship will be required for those students without appropriate work experience in government.

Doctor of Philosophy. General College of Graduate Studies requirements for application must be followed. Applicants to the Ph.D. program must also submit Graduate Record Examination scores, three letters of recommendation, and a 300-500 word statement of purpose directly to the Department of Political Science.

Department of Psychology

Richard Reardon, Dept. Chair (206 Student Health Ctr. 83844-3043; phone 208/885-6324). *Faculty:* Curt C. Braun, Brian P. Dyre, Kenneth D. Locke, Steven E. Meier, Richard Reardon, Todd J. Thorsteinson, Brenda K. Wood, Mark F. Yama.

Psychology is the scientific study of thinking, emotion, and behavior. It is a diverse field, and can be applied to almost all aspects of everyday life: interpersonal relationships, school and lifelong learning, family, and the work environment. Psychology uses scientific research methods to develop and test theories, and to explain or predict behavior. Undergraduate study in psychology provides a broad coverage of the field; whereas graduate study focuses more narrowly on a particular discipline, preparing students for professional work as researchers and/or practitioners.

The Psychology Department offers a B.S. or B.A. in psychology. The degree requires students to take a wide variety of courses in areas such as developmental processes, social psychology, learning and memory, personality, clinical psychology, biological processes, and sensation/perception. Depending on their interests, students also select from more specialized subjects such as human factors, industrial/organizational psychology, aging, and the psychology of emotion.

In conjunction with the degree course work requirements, students in the undergraduate program are encouraged to select one of four tracks or emphases depending on their postgraduate goals. A Liberal Arts Track is available for students who wish to obtain a broad background in psychology without specializing in any particular subdiscipline of psychology. Its diversity gives students a flexible background for postgraduate careers. This track is often combined with a major or minor in another academic discipline. The Job Skills Track is designed for students who wish to earn a B.S. or B.A. with more specific skills and knowledge relevant to a particular area of psychology, such as clinical/counseling, industrial/organizational psychology, or human factors. The Pre-graduate School Track is a package of recommended course work and other guidelines developed to enhance a student's preparation for graduate education in psychology. Finally, the Pre-professional Track is a set of guidelines designed for students who are interested in pursuing law, dental, or medical school. As part of all these tracks, students are encouraged to participate in research projects, internships, and teaching experiences to enhance their education.

Graduate training in the Psychology Department prepares students for careers in government and industry, teaching at the junior college level, or for continued study elsewhere at the doctoral level. The department offers an M.S. in psychology with an emphasis in either human factors psychology or industrial/organizational psychology. The intent of both emphases is to develop knowledge and skills germane to a professional position, and to provide appropriate preparation for those interested in further graduate study. Both human factors and industrial/organizational psychology emphases can be taken as thesis or nonthesis options. Occasionally, the department will accept applicants for the general experimental psychology M.S. Students interested in this option should contact the department for more information.

An applicant to the graduate program must possess an undergraduate degree in psychology or a related field, such as engineering, computer science, or business. In addition, applicants are required to have completed a course in introductory statistics, a course in experimental psychology or research methods, and a course in computer programming. Students wishing to emphasize human factors are required to have taken upper-level courses in cognitive psychology and sensation/perception; students wishing to emphasize industrial/organizational psychology are required to have taken upper-level courses in social psychology, I/O psychology, and tests and measurement.

Courses

See part 6 for courses in Psychology (Psyc).

Undergraduate Curricular Requirements

PSYCHOLOGY (B.A. or B.S.)

Note: Psyc 101 and Psyc 218 must be completed with a grade of C or better and a minimum cumulative GPA of 2.50 must be attained for students seeking upper-division standing in the department. In order to graduate with a degree in psychology, a 2.50 GPA must be attained.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

Psyc 101 Introduction to Psychology 3
Psyc 218 Introduction to Research in the Behavioral Sciences 4
Biol 100 Intro to Biology or Biol 201 Intro to the Life Sciences 4
CS 101 Intro to Computer Science or CS 112
Intro to Problem Solving & Programming 3
Stat 251 Principles of Statistics 3

A grade of C or above in at least three courses from each of the following two groups .. 18

Personal/Social Bases of Behavior
- Psyc 305 Developmental Psychology
- Psyc 310 Psychology of Personality
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology

Biological/Experimental Bases of Behavior
- Psyc 325 Cognitive Psychology
- Psyc 372 Physiological Psychology
- Psyc 390 Psychology of Learning
- Psyc 444 Sensation & Perception

At least 12 additional upper-division psychology credits. Only 3 of these credits may come from Psyc 400, 497, 498, and/or 499. A grade of C or better must be earned in each course taken to complete this category.

Academic Minor Requirements

PSYCHOLOGY MINOR

Note: Psyc 101 and Psyc 218 must be completed with a grade of C or better.

Psyc 101 Introduction to Psychology 3
Psyc 218 Introduction to Research in the Behavioral Sciences 4

A grade of C or above in at least two courses from each of the following groups 12

Personal/Social Bases of Behavior
- Psyc 305 Developmental Psychology
- Psyc 310 Psychology of Personality
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology

Biological/Experimental Bases of Behavior
- Psyc 325 Cognitive Psychology
- Psyc 372 Physiological Psychology
- Psyc 390 Psychology of Learning
- Psyc 444 Sensation & Perception

And a grade of C or better in at least one additional upper-division psychology course (not including Psyc 400, 403, 497, or 499).

Graduate Degree Program

In addition to the admission requirements of the Graduate College, the department requires Graduate Record Examination scores, letters of recommendation, and a brief essay regarding plans for graduate study and professional career. The undergraduate degree need not be in psychology, although at least a minor in psychology is desirable. In the event the student has a minimal background in psychology, this deficiency may be remedied by enrolling in certain undergraduate courses that would not necessarily be included in the graduate study plan.

The study program for each student is prepared with his or her future plans as a point of departure. Some students seek the master's degree as a terminal degree and assume positions in community mental health organizations, school systems, or industry, while others continue in doctoral studies.

Rsearch opportunities in the department are many. Students are encouraged to begin research early in their graduate study under the direction of a major professor of mutual choice.

Students admitted to this program must fulfill the requirements of the College of Graduate Studies and of the Department of Psychology. See the College of Graduate Studies section of part 4 for the general requirements applicable to all M.S. degrees.

Department of Rangeland Ecology and Management

Kendall L. Johnson, Dept. Head (205B FWR Bldg. 83844-1135; phone 208/885-6536). *Faculty:* Stephen C. Bunting, Kendall L. Johnson, James L. Kingery, Karen L. Launchbaugh, L. Kirk Lohman, Ronald Robberecht, Kenneth D. Sanders.

The western half of the continent is dominated by vegetation that is predominantly grasses, grass-like plants, forbs, or shrubs, collectively known as rangeland. This kind of land can also be described in more specific terms, such as prairie, plains, grassland, shrubland, savanna, steppe, desert, semidesert, sward, tundra, and alpine. Such lands occupy about 47 percent of the global land area and roughly a third of the United States. Idaho's rangelands, however, comprise nearly 70 percent of the total land area of the state, thus emphasizing the geographic and economic importance of these lands to the citizens of Idaho.

Rangelands serve a variety of uses necessary to maintain and enhance the nation's productive capacity and quality of life. Among them are habitat for many species of plants and animals, many different minerals for industrial uses, forage for domestic livestock and wildlife species, water for domestic, agricultural, and industrial uses, a broad spectrum of outdoor recreational activities, open space, and natural beauty. Sound management of rangelands based on ecological principles is required if society is to gain the full measure of products, benefits, and values that these resources offer.

The Department of Rangeland Ecology and Management in the College of Forestry, Wildlife and Range Sciences offers a program leading to the degree of Bachelor of Science in Rangeland Ecology and Management. The rangeland ecology and management curriculum at UI prepares students for the scientific management of rangelands within a variety of career opportunities. In addition, the range program provides ample opportunity for students to broaden their knowledge and skills in other areas of natural resource management, such as fish and wildlife, forestry, watershed, recreation, soils, agricultural economics, and animal science. Field study and evaluation of plant and animal communities are integral parts of the curriculum in rangeland ecology and management. Internships with public land management agencies and private livestock enterprises add to the educational opportunities in the program. Modern library and computer facilities also enhance the teaching and learning processes available to students.

Because of the extent, character, and importance of Idaho's rangelands, excellent opportunities exist for graduate study in all phases of rangeland use and management. The Forest, Wildlife and Range Experiment Station of the college sponsors and funds research in rangeland ecology and management as well as in other disciplines within the college. Cooperative research programs exist and are funded by the College of Agriculture, Agricultural Research Service, U.S. Forest Service, Bureau of Land Management, Idaho Cooperative Park Studies Unit, timber companies, and the livestock industry. All faculty members have teaching or service responsibilities as well as research activities.

Graduate students may earn the degree of Master of Science in Rangeland Ecology and Management in the department and the Doctor of Philosophy degree in the college with a major in forestry, wildlife, and range sciences. Admission for graduate study normally requires completion of course work equivalent or similar to that required for the undergraduate curriculum in rangeland ecology and management. Students with different backgrounds

may be admitted if deficiencies can be corrected in a reasonable time. The graduate program allows for diversity in a variety of fields such as range ecology, wildlife, animal science, soils, agricultural economics, forestry, and others.

Prospective students in rangeland ecology and management are urged to contact the departmental office for further information (208/885-6536).

Courses

See part 6 for courses in Range Resources (Rnge).

Undergraduate Curricular Requirements

RANGELAND ECOLOGY AND MANAGEMENT (B.S.Rangeland Ecol.-Mgt.)

Required course work includes the university requirements (see regulation J-3) and:

First and Second Years

Rnge/WLF/For 221 Natural Resources Ecology 3
Rnge 251 Principles of Range Resources Management 2
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Bot 241 Systematic Botany 3
Chem 101 Introduction to Chemistry I or 111 Principles of Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
For/RRT 235 Society & Natural Resources 3
FWR 101 Forestry Orientation 1
Math 160 Survey of Calculus 4
Soil 205, 206 General Soils & Lab 4
Stat 251 Principles of Statistics 3

Summer Session

For/Rnge/WLF/RRT/Fish/ForP 302 Wildland Field Ecology 2

Third and Fourth Years

Rnge 353 Rangeland Plant Identification & Ecology 3
Rnge 354 Wildland Vegetation Management & Restoration 3
Rnge 357 Rangeland & Riparian Habitat Assessment 3
Rnge 456 Integrated Rangeland Management 3
Rnge 459 Rangeland Ecology 3
Bot 311 Plant Physiology 4
Engl 317 Tech & Engr Report Writing or 313 Business Writing 3
For/Rnge/WLF/Fish/RRT/ForP 470 Interdisciplinary Natural Resource Planning 3
Geog 385 GIS Primer 3
Soil 454 Soil Development & Classification 3

And one of the following options:

A. RANGELAND ECOLOGY OPTION

First and Second Years

Two of the following courses 4-6
- Fish/WLF 290 Fish & Wildlife Ecology, Mgt, & Conservation (3 cr)
- For 270 Principles of Forest Ecosystem Management or ForP 250 Principles of Forest Products (2 cr)
- RRT 287 Professional Foundations of Resource Recreation & Tourism (3 cr)

Third and Fourth Years

Rnge 352 Natural History of Western Rangelands 3
Restricted electives selected from the following 22
- Biol 351/Gene 314 General Genetics (3 cr)
- Biol 442 Biological Evolution (3 cr)
- Bot 432 Plant Ecology (3 cr)
- Bot 435, 436 Plant Environmental Biophysics & Lab (3 cr)
- Ent 447 Fundamentals of Biological Control (2 cr)
- Ent 451 Applied Biological Control: Weeds (1 cr)
- Ent 491 Principles of Insect Pest Management (3 cr)
- EnvS 528 Pollution Prevention (3 cr)
- Fish 314 Fish Ecology (3 cr)
- Fish 415/Zool 435 Limnology (4 cr)
- For 330 Forest Ecosystem Processes (3 cr)
- For 423 Forest Community Ecology (1 cr)
- For 424 Silviculture II (2 cr)
- For 426 Wildland Fire Management & Ecology (3 cr)
- For 462 Watershed Management (2 cr)
- For 465 Forest Protection (2 cr)
- Geog 301 Meteorology (3 cr)
- Geog 315 Geomorphology (3 cr)
- Geog 325 Quantitative Geomorphology (3 cr)
- Geog 401 Climatology (3 cr)
- Geol 336 Processes in Glacial & Periglacial Environments (3 cr)
- Geol 361 Geology & the Environment (3 cr)
- Geol 405 Earth Sciences (3 cr)
- PlSc 410 Biology of Weeds (3 cr)
- Rnge 430 Riparian Ecology & Management (2 cr)
- Rnge 497 Senior Research & Thesis (3 cr)
- Soil 422 Chemistry of Soil Environment (3 cr)
- Soil 425 Microbial Ecology (3 cr)
- Soil 437 Soil Biology (3 cr)
- Soil 438 Pesticides in the Environment (3 cr)
- Soil 446 Soil Fertility (3 cr)
- Stat 401 Statistical Analysis (3 cr)
- Stat 422 Sampling Methods (2 cr)
- WLF 314 Wildlife Ecology I (3 cr)
- WLF 440 Conservation Biology (3 cr)
- WLF 445 Nongame Management (2 cr)
- WLF 448 Fish & Wildlife Population Ecology (4 cr)

Electives to total 128 credits for the degree ..... —

B. ENVIRONMENTAL ASSESSMENT OPTION

First and Second Years

Two of the following courses 4-6
- Fish/WLF 290 Fish & Wildlife Ecology, Mgt, & Conservation (3 cr)
- For 270 Principles of Forest Ecosystem Management or ForP 250 Principles of Forest Products (2 cr)
- RRT 287 Professional Foundations of Resource Recreation & Tourism (3 cr)

Third and Fourth Years

Restricted electives selected from the following 22
- Comm 331 Conflict Management (3 cr)
- Comm 332 Communication & the Small Group (3 cr)
- Comm 347 Persuasion (3 cr)
- Comm 431 Professional Presentation Techniques (3 cr)
- CS 371 Expert Systems (3 cr)
- Fish 415/Zool 435 Limnology (4 cr)
- For 375 Airphoto Interpretation & Mapping(3 cr)
- Geog 370 Spatial Analysis (3 cr)
- Geog 380 Cartography & Graphic Communication (3 cr)
- Phil 452 Environmental Philosophy (3 cr)
- PlSc 409 Scientific Photography & Data Presentation (1 cr)
- Rnge 352 Natural History of Western Rangelands (3 cr)
- Rnge 430 Riparian Ecology & Management (2 cr)
- Rnge 493 Environmental Law (2 cr)
- Rnge 497 Senior Research & Thesis (3 cr)
- Stat 401 Statistical Analysis (3 cr)
- Stat 422 Sampling Methods (2 cr)
- WLF 440 Conservation Biology (3 cr)

Electives to total 128 credits for the degree ..... —

C. RANGELAND MANAGEMENT OPTION

First and Second Years

AVS 205 Introduction to Animal Nutrition 3
Two of the following courses 4-6
- Fish/WLF 290 Fish & Wildlife Ecology, Mgt, & Conservation (3 cr)
- For 270 Principles of Forest Ecosystem Management or ForP 250 Principles of Forest Products (2 cr)
- RRT 287 Professional Foundations of Resource Recreation & Tourism (3 cr)

Third and Fourth Years

Rnge 352 Natural History of Western Rangelands 3
For 383 Economics for Natural Resource Managers or AgEc 451 Land & Natural Resource Economics 3
For 462 Watershed Management 2
One of the following 2-4
- Bot 441 Agrostology (3 cr)
- For 375 Airphoto Interpretation & Mapping (3 cr)
- ForP 230, 231 Forest Land Measurements I-II and For 274 Forest Measurement Techniques (4 cr)
- PlSc 308 Forage & Grassland Management (3 cr)
- PlSc 338 Weed Control (3 cr)
- PlSc 410 Biology of Weeds (3 cr)
- Rnge 430 Riparian Ecology & Management (2 cr)

One of the following 3-4
- AVS 222 Animal Reproduction & Breeding (4 cr)
- AVS 305 Animal Nutrition (4 cr)
- AVS 306 Feeds & Ration Formulation (4 cr)
- AVS 371 Anatomy & Physiology (4 cr)
- AVS 466 Horse Production (3 cr)
- AVS 474 Beef Cattle Science (3 cr)
- AVS 476 Sheep Science (3 cr)

Electives to total 128 credits for the degree ..... —

RANGE LIVESTOCK MANAGEMENT (B.S.R.L.M.)

The major in range livestock management provides training in animal science with a sound background in the relationship between animals and plants and is intended for students interested in the management or operation of range and pasture beef cattle or sheep operations.

Required course work includes the university requirements (see regulation J-3) and:

AVS 101 Animal & Veterinary Orientation or Rnge 200 Seminar 1-2
AVS 109 The Science of Animals that Serve Humanity 3
AVS 222 Animal Reproduction & Breeding 4
AVS 305 Animal Nutrition 4
AVS 306 Feeds & Ration Formulation 4
AVS 450 Issues in Animal Agriculture 1
AVS 452 Physiology of Reproduction 4
AVS 474 Beef Cattle Science or 476 Sheep Science 3
ASM 240 Computer Applications in Biological Systems (or advanced placement test by department) 3
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Bot 241 Systematic Botany 3
Bot 311 Plant Physiology or PlSc 401 Crop Physiology 3-4
Chem 111 Principles of Chemistry I 4
Chem 275 Carbon Compounds 3
Comm 101 Fundamentals of Public Speaking 2
Econ 201, 202 Principles of Economics 6
Engl 317 Technical & Engineering Report Writing 3
For/RRT 235 Society & Natural Resources 3

Math 143 Pre-calculus Algebra & Analytic Geometry or 160 Survey of Calculus 3-4
PISc 308 Forage & Grassland Management 3
Rnge 221 Natural Resources Ecology 3
Rnge 251 Principles of Range Resources Management 2
Rnge 352 Natural History of Western Rangelands 3
Rnge 354 Wildland Vegetation Management & Restoration 3
Rnge 357 Rangeland & Riparian Habitat Assessment 3
Rnge 430 Riparian Ecology & Management 2
Rnge 456 Integrated Rangeland Management 3
Rnge 459 Rangeland Ecology 3
Soil 205, 206 General Soils & Lab 4
Stat 251 Principles of Statistics 3
Courses selected from the following (a minimum of 3 cr in each college) 8
- AVS 218 Artificial Insemination & Pregnancy Detection (2 cr)
- AVS 263 Live Animal & Carcass Evaluation (3 cr)
- AVS 330 Genetics of Farm Animals (3 cr)
- AVS 371 Anatomy & Physiology (4 cr)
- AVS 411 Microbiology & Physiology of Ruminant Nutrition (3 cr)
- AVS 466 Horse Production (3 cr)
- AVS 476 or 474 (if not taken above) (3 cr)
- Fish/WLF 290 Fish & Wildlife Ecology, Mgt, & Conservation (3 cr)
- For 270 Principles of Forest Ecosystem Mgt (2 cr)
- Rnge 353 Rangeland Plant Identification & Ecology (3 cr)
- Rnge 454 Rangeland Weed Management (3 cr)
- RRT 287 Professional Foundations of Resource Recreation & Tourism (3 cr)

Electives to total 132 cr for the degree ..... —

NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Forestry, Wildlife and Range Sciences (General)" above.

Academic Minor Requirements

RANGELAND ECOLOGY AND MANAGEMENT MINOR

Rnge 221 Natural Resources Ecology 3
Rnge 251 Principles of Range Resources Management 2
Rnge 353 Rangeland Plant Identification & Ecology 3
Rnge 459 Rangeland Ecology 3
Two of the following courses 5-6
- Rnge 352 Natural History of Western Rangelands (3 cr)
- Rnge 354 Wildland Vegetation Management & Restoration (3 cr)
- Rnge 357 Rangeland & Riparian Habitat Assessment (3 cr)
- Rnge 430 Riparian Ecology & Management (2 cr)
- Rnge 456 Integrated Rangeland Management (3 cr)

One of the following courses (or a course not chosen above) 2-3
- Rnge 458 Agroforestry (3 cr)
- Rnge 493 Environmental Law (2 cr)
- AVS 474 Beef Cattle Science (3 cr)
- AVS 476 Sheep Science (3 cr)
- For 426 Wildland Fire Management & Ecology (3 cr)
- For 462 Watershed Management (2 cr)
- PISc 338 Weed Control (3 cr)
- PISc 410 Biology of Weeds (3 cr)
- Soil 454 Soil Development & Classification (3 cr)
- WLF 314 Wildlife Ecology I (3 cr)

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Forestry, Wildlife and Range Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. Thesis and nonthesis options are offered. (A) Thesis option: General M.S. requirements apply except that the thesis requirements may be fulfilled by a publication(s) at the discretion of the candidate's supervisory committee. (B) Nonthesis option: General M.S. requirements apply. A written and/or oral examination that covers graduate course work must be taken during the final semester in residence. One or more professional papers may be required at the discretion of the candidate's supervisory committee. The nonthesis degree is designed primarily for candidates with background experience in some area of range resource use or management.

Doctor of Philosophy. The Ph.D. degree is available with a major in forestry, wildlife and range sciences. General Ph.D. requirements apply; see the FWR section for details.

Religious Studies

Nicholas F. Gier, Coordinator (403 Morrill Hall 83844-3016; phone 208/885-6284). *Faculty:* Janice Capel Anderson, Ginna M. Babcock, Nicholas F. Gier, Walter A. Hesford, Ellen E. Kittell, Cecelia E. Luschnig, Kerry E. McKeever, Louis A. Perraud, Laura Putsche. *Affiliate Faculty:* Ken W. Clark, Kip W. Jenkins, Sharon Kehoe.

The academic study of religion has deep roots in Western intellectual history. One cannot adequately grasp the full dynamics of world culture without attending to the role of religion. In the last hundred years scholars in the West have paid increasing attention to non-Western religions and to the category of "religion" itself as a dimension of human experience.

Religious studies courses do not encourage or discourage religious belief; rather, they engage in the academic study of religion as a crucial element of human culture. Religious studies employs a variety of methods including anthropological, sociological, historical, philosophical, phenomenological, literary, and linguistic approaches. The principal goal of religious studies is submitting sacred texts and traditions to descriptive, analytical, critical, and empathetic scrutiny.

In terms of employment potential, a religious studies minor primarily serves a student in the same way that history or philosophy might. It increases a student's understanding of persons and cultures. Key liberal arts skills in close reading, analysis, research, and oral and written communication are central to religious studies. Some students will use religious studies to enhance their chances of acceptance in graduate programs in areas such as anthropology, sociology, social work, international relations, history, or various area studies. Others may use the minor as a broadly based stepping stone for professional training in theological seminaries or rabbinical schools.

Courses

See part 6 for courses in Religious Studies (RelS).

Academic Minor Requirements

RELIGIOUS STUDIES MINOR

Courses in religious traditions chosen from the following (at least 3 cr in Asian and Pacific Religious Traditions and at least 3 cr in Western Religious Traditions) 9

Asian and Pacific Religious Traditions
- Hist 180 Introduction to East Asian History
- Hist 483 Traditional Chinese Civilization
- Phil 306 Hindu Thought
- Phil 307 Buddhism
- Phil 308 Confucianism & Taoism
- RelS 204/404 Special Topics related to this category

Western Religious Traditions
- Hist 442 The Medieval Church
- Hist 447 The Age of the Renaissance & Reformation
- Phil 302 Biblical Judaism: Texts & Thought
- Phil 303 Early Christianity: Texts & Thought
- RelS 201 Introduction to Islam
- RelS 204/404 Special Topics related to this category
- RelS 321 Twentieth Century Theology

Courses in approaches to religious studies and religion and culture chosen from the following (at least 3 cr in Approaches to Religious Studies and at least 3 cr in Religion and Culture) 9

Approaches to Religious Studies
- Anth 327 Belief Systems
- Engl 375 The Bible as Literature
- Phil 305 Philosophy of Religion
- RelS 101 Introduction to Religious Studies
- RelS 204/404 Special Topics related to this category
- Soc 414 Development of Social Theory

Religion and Culture
- Anth 329 North American Indians
- Anth 426 Anthropology of China
- FLEN 211 Classical Mythology (Gods)
- FLEN 212 Classical Mythology (Heroes)
- FLEN 441 Ancient Greek Civilization
- FLEN 442 Civilization of Ancient Rome
- Hist 101-102 History of Civilization
- Hist 457 History of the Middle East
- Phil 240 Belief & Reality
- Phil 309 History of Ancient Philosophy
- Phil 310 History of Modern Philosophy
- Phil 315 Existentialism
- RelS 133 Religion & Family
- RelS 204/404 Special Topics related to this category
- RelS 322 Religious Movements in America

Foreign languages appropriate to the minor are strongly recommended. For example, Japanese or Chinese is recommended for concentration in Asian and Pacific traditions, and Greek or Latin for those focusing on Western traditions.

Department of Resource Recreation and Tourism

Steven J. Hollenhorst, Dept. Head (19 FWR Bldg. 83844-1139; phone 208/885-7911; e-mail rrt@uidaho.edu; http://www.uidaho.edu/cfwr/rrt). *Faculty:* James R. Fazio, Sam H. Ham, Charles C. Harris, John C. Hendee, Steven J. Hollenhorst, Edwin E. Krumpe, William J. McLaughlin, Nick Sanyal. *Adjunct Faculty:* Gary E. Machlis, Keith C. Russell, Michael R. Whiteman. *Affiliate Faculty:* Stewart Allen, James R. Barborak, David N. Cole, Robert Cooley, LuVerne D. Grussing, James C. Halfpenny, Bjorn P. Kaltenborn, Kenneth W. Kendall, Craig G. MacFarland, Mary McGown, Richard A. Meganck, Richard L. Shew, Broc E. Stenman, Gary M. Stoltz, James Tangen-Foster, Thom A. Votaw, George N. Wallace, Betty Weiler.

Programs in the Department of Resource Recreation and Tourism involve the study of land and its natural resources, the people who use resources for recreational purposes, and the private and governmental institutions that determine how land will be managed. This discipline is an outgrowth of increasing public interest in outdoor recreation and nature tourism that ranges from wilderness backpacking and river floating to hang-gliding, cruising, and enjoying the comforts of a resort. The ever-increasing variety of demands and conflicts and the growing numbers of tourists in all age and cultural groups has created unprecedented pressures on recreation resources. At the same time outstanding opportunities are being created for the tourism industry. Modern recreation and tourism management attempts to reconcile conflicts and ensure high-quality opportunities of all kinds while at the same time protecting natural, social, and cultural resources for the future.

The educational objective of this curriculum is to provide men and women with the knowledge, skills, and confidence needed to handle a wide array of professional opportunities now available in resource-based recreation and tourism. Students receive a solid educational

foundation by studying natural resources and their management. This is coupled with courses in the human dimensions of resource use, including a strong emphasis in communication and business. In addition, experiencing outdoor recreation and tourism is emphasized as well as learning firsthand about its management.

The B.S. in resource recreation and tourism prepares qualified students for advanced degrees in most recreation resource, park and recreation, or tourism graduate programs. Graduates find employment in private businesses, in county, state, and national parks, in educational institutions, and in a variety of resource-management agencies such as the U.S. Forest Service, Bureau of Land Management, National Park Service, and others. Some students combine their education in resource recreation and tourism with a second degree in forest, wildlife, or range management to broaden their employability even further. Still others select a foreign language to prepare for work at the international level.

It is department philosophy that graduates should be prepared for the entire spectrum of resource recreation and tourism career opportunities. Careers, however, usually begin in one of five general areas: recreation resource management, natural resource communication, wilderness and nature conservation, tourism and leisure enterprises, or outdoor recreation leadership. Students must select one of the department minors from these areas, any other university minor, or develop a block of 12 credits of approved electives to provide depth in an area related to resource recreation and tourism management. Faculty members in the department have been chosen to ensure that students can receive instruction and counsel in the entire spectrum of resource recreation and tourism.

The graduate program in resource recreation and tourism is multidisciplinary and provides students with the opportunity to combine interests in natural resource management and the social sciences. In cooperation with an advisory committee, each student develops a program of studies that supports his or her educational and professional interests. Graduate courses are available in this department and in supporting areas such as forest resources, wildlife management, anthropology, education, communication, political science, sociology, and psychology.

Admission to graduate study normally requires completion of undergraduate course work in the natural and social sciences. Applicants who have completed their undergraduate degrees in fields not closely related to resource recreation and tourism may be required to make up deficiencies as determined by their advisory committees. In addition to the college's application requirements, the Graduate Record Examination (or other accepted graduate examination such as GMAT or LSAT) is required for consideration of all candidates. Admission is based on undergraduate grades, evidence of ability to complete graduate-level work, letters of recommendation, examination scores, the compatibility of the student's educational and career objectives with areas of concentration in the department, and the availability of departmental graduate faculty.

For additional information, consult the department head (telephone 208/885-7911).

Courses

See part 6 for courses in Resource Recreation and Tourism (RRT).

Undergraduate Curricular Requirements

RESOURCE RECREATION AND TOURISM (B.S.Res.Rc.)

A total of 128 credits is required for the degree. This includes the university requirements (see regulation J-3), and the course work listed below. Students must select any academic minor (including those in the Department of Resource Recreation and Tourism) or a list of at least 12 credits of electives approved in advance by the adviser to complete credit requirements. Students are also required to do an adviser-approved internship and attend two, two-week long field studies and field ecology courses at the beginning of summer session following their freshman and sophomore years. Special fees are required for these and a few other courses.

First and Second Years

RRT/For 235 Society & Natural Resources 3
RRT 287 Professional Foundations of Resource Recreation & Tourism 3
RRT/For/Rnge/WLF/Fish/ForP 302 Wildland Field Ecology 2
RRT 303, 304 Resource Recreation & Tourism Field Studies I-II 3
RRT 310 Leisure Services Research & Evaluation 4
Biol 201 Introduction to the Life Sciences 4
Biol 203 General Botany 4
Chem 101 Introduction to Chem I or Chem 111 Principles of Chem I 4
Comm 101 Fundamentals of Public Speaking or one semester of a foreign language 2-4
For/Rnge/WLF 221 Natural Resources Ecology 3
Geol 101 Physical Geology 4
Math 137 or 143 or 160 or 170 3-4
PolS 101 Intro to Political Science & American Government 3
Stat 251 Principles of Statistics or 301 Probability & Statistics 3
Two of the following 6
- Anth 100 Introduction to Anthropology
- Psyc 101 Introduction to Psychology
- Soc 101 Introduction to Sociology

Electives or courses in minor 12

Third and Fourth Years

RRT 383 Amenity Resource Economics for Environmental Policymaking 3
RRT 385 Resource Recreation & Tourism Management 3
RRT 386 Resource Recreation & Tourism Planning 3
RRT 394 Natural Resources Communication 3
RRT 398 Internship 6-9
RRT/For/Rnge/WLF/Fish/ForP 470 Interdisciplinary Natural Resource Planning 3
RRT 484 Management of Recreation Sites & Leisure Settings 2
RRT 489 Personalities & Philosophies in Conservation 2
Bot 241 Systematic Botany or For 320 Dendrology or LArc 288 Plant Materials I or Rnge 353 Rangeland Plant Ident & Ecology 3
Econ 202 or 201 Principles of Economics 3
One writing course, such as Engl 207, 208, 209, 313, 317 3
For 375 Airphoto Interpretation & Mapping or LArc or Geog 385 GIS Primer 3
Any course numbered 300 or above in sociology or psychology or one of the following .. 3
- RRT 387 Environmental & Cultural Interpretation
- RRT 486 Public Involvement in Natural Resource Management
- RRT 491 Wilderness Leadership for Personal Growth
- Bus 311 Introduction to Management
- Bus 321 Marketing
- Bus 324 Buyer Behavior
- Bus 427 Services Marketing
- FCS 436 Theories of Child & Family Development
- FCS 440 Contemporary Family Relationships
- FCS 448 Consumer Economic Issues

Electives to total 128 cr for the degree ..... —

NATURAL RESOURCES ECOLOGY AND CONSERVATION BIOLOGY (B.S.Nat.Res.Ecol.-Cons.Biol.)

See the section on "Forestry, Wildlife and Range Sciences (General)" above.

Academic Minor Requirements

ENVIRONMENTAL COMMUNICATION MINOR

Comm 121 Media Writing 3
RRT 387 Environmental & Cultural Interpretation 3
RRT 394 Natural Resources Communication 3
RRT 486 Public Involvement in Natural Resource Management 3
RRT 487 Field Environmental Education 3
RRT 488 Interpretive Methods Lab or Comm 431 Professional Presentation Techniques 3
At least one course from the following 3
- Comm 252 Principles of Public Relations
- Comm 265 Advertising & Society
- Comm 275 Introduction to Video Production
- Comm 281 Understanding Photography
- Comm 331 Conflict Management
- Comm 347 Persuasion
- Comm 360 Broadcast Media Advertising
- Comm 362 Print Media Advertising
- Comm 425 Feature Article Writing

OUTDOOR RECREATION LEADERSHIP MINOR

RRT 287 Professional Foundations of Resource Recreation & Tourism or Rec 125 Outdoor Leisure Pursuits 2-3
RRT 387 Environmental & Cultural Interpretation 3
RRT 490 Wilderness Management or RRT 491 Wilderness Leadership for Personal Growth 3
RRT 487 Field Environmental Educ or Rec 420 Experiential Educ 2-3
Rec 215 River Reading & Whitewater Safety 1
Rec 320 Outdoor Recreation Leadership or Rec 254 Camp Leadership 2-3
Rec 321 Wilderness Medicine & Evacuation or H&S 288 First Aid: Emergency Response 1-2
Courses selected from the following 5
- PEB 106 Individual & Dual Sports: Fly Tying/Casting (1 cr)
- PEB 108 Swimming: Scuba (1 cr)
- Rec 220 Rock Climbing
- Rec 221 Mountaineering
- Rec 222 Cross Country Skiing
- Rec 223 Winter Camping
- Rec 224 Whitewater Rafting
- Rec 225 Kayaking
- Rec 226 Whitewater Canoeing
- Rec 227 Mountain Biking
- Rec 255 Backpacking & Camping Skills
- RRT/Rec 204 Approved Special Topic course
- Technical competency (contact dept)

TOURISM AND LEISURE ENTERPRISES MINOR

Bus 321 Marketing 3
RRT/Rec 181 Introduction to Hospitality Services Industries 3
RRT 381/Rec 382 Hospitality Management & Organization 3
RRT 394 Natural Resources Communication 3
Rec 340 Leisure & Tourism Enterprises 3
One course selected from the following 2-3
- RRT 386 Resource Recreation & Tourism Planning
- RRT 236/Rec 235 Principles of Tourism
- RRT 398 Internship
- Rec 204/Rec 280 Special Topics/Practicum
- Rec 486 Recreation Program Planning & Marketing I

WILDERNESS AND NATURE CONSERVATION MINOR

For/Rnge 221 Natural Resources Ecology or a general ecology course or Biol 331 General Ecology or RRT 306 Winter Field Ecology or RRT 302 Wildland Field Ecology 2-3
RRT 387 Environmental Interpretive Methods 3
RRT 489 Personalities & Philosophies in Conservation 2
RRT 490 Wilderness Management 3
RRT 491 Wilderness Leadership for Personal Growth 3
RRT 493 International Issues in Nature Conservation 3
RRT 496 Monitoring Human Impacts in Wilderness 3

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the College of Forestry, Wildlife and Range Sciences. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree.

Master of Science. Thesis and nonthesis options are offered. (A) Thesis programs are specifically research oriented and the student is required to conduct independent research and present the results as a thesis, which must be approved by the candidate's supervisory committee. (B) Nonthesis programs are concentrated more on course work. Though research may be conducted, the candidate is not required to present the results in a formal thesis. A final report, professional paper(s), or other terminal project agreed on in advance by the advisory committee is a normal requirement under this plan. This program lends itself to projects such as recreation master plans, regional plans, area management plans, historical reviews, and the development of professional interpretive media. For both the thesis and nonthesis options, after a research or other scholarly project is selected, the student must prepare for his or her committee a formal work plan and make an oral public presentation of the proposed project. The purpose of this requirement is to: (a) help structure and sharpen the student's thinking and approach to the project, (b) obtain the views of various knowledgeable persons that may lead to constructive modifications in the work plan, (c) gain experience in making professional presentations, and (d) increase communication within the academic community.

Doctor of Philosophy. The Ph.D. degree is available with a major in forestry, wildlife and range sciences. General Ph.D. requirements apply; see the FWR section for details.

Department of Sociology, Anthropology, and Justice Studies

Donald E. Tyler, Dept. Chair (101 Phinney Hall 83844-1110; phone 208/885-6751). *Faculty:* Ginna M. Babcock, Rodney P. Frey, Michelle L. Inderbitzin, Eric L. Jensen, Robert G. Martin, Brian L. Pitcher, Laura Putsche, Gary E. Reed, R. Lee Sappington, Debbie A. Storrs, Donald E. Tyler, Mark S. Warner. *Adjunct Faculty:* Alice Pope Barbut, Gary E. Machlis. *Affiliate Faculty:* Ronald J. Sipe, Priscilla S. Wegars.

Sociology and anthropology are the two social sciences that seek to understand and explain the shared behavior of people in organized groups or societies. Sociology is largely concerned with the study of western civilization as a system, particularly as regards a description of American society and how it operates today. Anthropology is concerned with the study of humanity as a part of the natural world, and of culture that developed to cope with that world. Anthropologists have dealt largely with prehistoric and primitive or simple societies and cultures in an effort to arrive at an understanding of universal cultural laws. Increasingly, anthropologists are applying basic concepts to the study of modern, complex societies. Majors are encouraged to take courses in the other social sciences (economics, cultural geography, political science, and psychology) and in the humanities (history, philosophy, and the arts) as well.

The department offers a separate degree program for students interested in criminology and criminal justice. This major is designed as an interdisciplinary program of study incorporating courses in sociology, psychology, and political science. Courses are also offered through a cooperative arrangement with Washington State University. This program provides academic training in preparation for careers throughout the justice system, including justice and social policy research, as well as preparing students for graduate and professional schools. Field experience in the form of internships is available during the student's senior year.

The department offers the B.A. and B.S. degrees in anthropology, crime and justice studies, and sociology. Graduates of the department can consider a wide range of employment possibilities, about which information can be obtained from the faculty.

In addition to the minors in anthropology, sociology, and crime and justice studies, students are encouraged to consider a minor in American Indian studies. In cooperation with regional Indian communities and with other academic departments within the university, the interdisciplinary and experiential curriculum of the American Indian studies minor provides students with background in the culture, history, and literature of the American Indian, as well as addresses current issues.

While intending to embrace the fields in their entirety, the department has major strengths in particular areas. Students are encouraged to seek these out in consultation with the faculty.

The Laboratory of Anthropology is part of the department. Within the laboratory are the Archive of Pacific Northwest Archaeology, Archaeological Survey of Idaho Northern Repository, extensive layout space, and historical and prehistoric archaeological collections. The metal cleaning and preservation facilities are among the largest and most modern in the western states. The laboratory publishes the University of Idaho reports.

In the field of anthropology, graduate study is offered in such areas as American Indian studies, prehistorical and historical archaeology, sociocultural anthropology, and physical anthropology.

An applicant to the program must hold a bachelor's degree from an accredited college or university and must have a minimum 3.00 overall GPA. An undergraduate major in anthropology is not required, but 12 credits of upper-division anthropology course work are necessary. Students who otherwise meet eligibility requirements but who do not have sufficient background in anthropology may be required to take additional undergraduate work. The number of classes will vary with the degree of deficiency and the student's demonstrated potential for academic work. Preparation in statistics is required and proficiency in one non-English language is strongly recommended.

Students with marginal qualifications might be admitted to provisional status or may be advised to complete a year of undergraduate study in anthropology before being considered for the program. Students with an overall GPA less than 3.00 but greater than 2.80 will be considered for provisional status if their grades in upper-division classes average 3.00 or better. Students who do not have the required GPA but who have strong recommendations or acceptable professional experience will be considered for the program after completing 12 credit hours of postbaccalaureate study in upper-division or graduate anthropology courses with A or B grades. Although the department does not require the Graduate Record Examination, applicants with marginal qualifications should take the GRE and submit their score with the application.

Questions concerning courses and degree programs should be addressed to the chair, Department of Sociology/Anthropology/Justice Studies, Moscow, ID 83844-1110 (208/885-6751).

Courses

See part 6 for courses in Anthropology (Anth), Crime and Justice Studies (CJ), and Sociology (Soc).

Undergraduate Curricular Requirements

ANTHROPOLOGY (B.A. or B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

- Anth 100 Introduction to Anthropology 3
- Anth 220 Peoples of the World 3
- Anth 230 World Prehistory 3
- Anth 231 Introduction to Archaeology 3
- Anth 251 Introduction to Physical Anthropology 3
- Anth 410 Research Methods in Anthropology 3
- Anth 420 Anthropological History & Theory 3
- Anth 428 Social & Political Organization 3
- Anth 441 Introduction to Study of Language or 261 Language & Culture or 450 Descriptive Linguistics 3
- Soc 101 Introduction to Sociology 3
- Stat 251 Principles of Statistics 3
- Anthropology electives (upper-division) 15
- Related fields as approved by the department 15

CRIME AND JUSTICE STUDIES (B.A. or B.S.)

Note: Crime and justice studies majors must obtain a minimum GPA of 2.50 before they are allowed to take upper-division CJ courses.

A total of 60 credits, from the required and elective list, must be completed in order to satisfy the departmental requirements for the crime and justice major.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. or B.S. degree, and:

- CJ 101 Introduction to the Justice System 3
- CJ 320* Police, Society, & Justice or 332* Corrections 3
- CJ 325 Criminal Law 3
- CJ 401 Justice Policy Issues 3
- CJ 422* Race, Gender, & Class in the Justice System or Soc 322* Racial & Ethnic Relations 3
- Engl 209 Inquiry-Based Writing 3
- Phil 103 Ethics 3
- PolS 467* Constitutional Law or PolS 468* Civil Liberties or 469* The Judicial Process 3
- Soc 101 Introduction to Sociology 3
- Soc 330* Juvenile Delinquency or 331* Criminology 3
- Soc 410 Methods of Social Research 3
- Stat 251 Principles of Statistics or Stat 150 Intro to Statistics 3
- Electives chosen from the following (including 15 upper-division credits excluding internship) (if the student takes CJ 498 for 6 cr, he or she needs 18 credits of electives) 24
  - CJ 150 Organizational Environment of Criminal Justice
  - CJ 330 Crime Control Policies
  - CJ 365 Juvenile Justice & Corrections
  - CJ 370 Introduction to Policing in America
  - CJ 405 Comparative Criminal Justice Systems
  - CJ 420 Law of Evidence & Criminal Procedure
  - CJ 498 Internship in Criminal Justice
  - Anth 451 Forensic Anthropology
  - H&S 311 Acquaintance Rape
  - Phil 434 Philosophy of Law
  - PolS 101 Introduction to Political Science & American Government
  - PolS 275 American State & Local Government
  - PolS 451 Public Administration
  - PolS 452 Administrative Law & Regulation
  - PolS 454 Public Organization Theory
  - PolS 460 Law & Society
  - Psyc 311 Abnormal Psychology
  - Psyc 320 Introduction to Social Psychology
  - Soc 230 Social Problems
  - Soc 313 Collective Behavior
  - Soc 320 Sociology of Substance Abuse
  - Soc 322 Racial & Ethnic Relations
  - Soc 323 Social Stratification
  - Soc 324 Sociology of Gender
  - Soc 325 Sociology of the Family
  - Soc 430 Deviance
  - Soc 434 Family Violence

*May be used as an elective if not counted as required course.

SOCIOLOGY (B.A.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.A. degree, and the following courses (electives must be approved by the student's adviser):

- Soc 101 Introduction to Sociology 3
- Soc 230 Social Problems 3

Soc 322 Racial & Ethnic Relations or 323 Social Stratification or 324 Sociology of Gender 3
Soc 410 Methods of Social Research 3
Soc 414 Development of Social Theory 3
Anth 100 Introduction to Anthropology 3
Stat 251 Principles of Statistics 3
Sociology electives (upper-division, max 3 cr each for Soc 315 or 498) 21
Related fields (the more common areas incl anthro, econ, geog, hist, political sc, and psych) 18

Students who wish to emphasize human services add the requirements shown under the B.S. in sociology below (15 cr).

SOCIOLOGY (B.S.)

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for the B.S. degree, and the following courses (electives must be approved by the student's adviser):

Soc 101 Introduction to Sociology 3
Soc 230 Social Problems 3
Soc 322 Racial & Ethnic Relations or 323 Social Stratification or 324 Sociology of Gender 3
Soc 410 Methods of Social Research 3
Soc 414 Development of Social Theory 3
Anth 100 Introduction to Anthropology 3
Stat 251 Principles of Statistics 3
Sociology electives (upper-division, max 3 cr each for Soc 315 or 498) 21
Related fields (the more common areas incl anthro, econ, geog, hist, political sc, and psych) 18
Two courses from the following 6
- Anth 251 Introduction to Physical Anthropology
- Anth 411 Human Evolution
- Anth 412 Human Races
- Biol 100 Introduction to Biology
- Biol 201 Introduction to the Life Sciences
- Biol 351 General Genetics
- EnvS 101 Introduction to Environmental Science
- Math 130 Finite Mathematics
- MMBB 154 Introductory Biology of Bacteria & Viruses
- Phil 250 Introduction to Philosophy of Science
- Stat 401 Statistical Analysis (or advanced statistics course)
- Zool 120 Human Anatomy

Students who wish to emphasize human services add the following requirements:

Soc 240 Introduction to Social Services 3
Courses chosen from the following (upper-division courses will be applied to the sociology upper-division elective requirement listed above) 12
- Soc 209 Alternatives to Violence (ATV) Training
- Soc 315 Community Service Learning
- Soc 320 Sociology of Substance Abuse
- Soc 323 Social Stratification
- Soc 325 Sociology of the Family
- Soc 330 Juvenile Delinquency
- Soc 431 Personal & Social Issues in Aging
- Soc 434 Family Violence
- Soc 470 Senior Seminar in Applied Research
- Soc 498 Internship

Academic Minor Requirements

ANTHROPOLOGY MINOR

Anth 100 Introduction to Anthropology 3
Two courses from the following 6
- Anth 220 Peoples of the World
- Anth 230 World Prehistory
- Anth 231 Introduction to Archaeology
- Anth 251 Introduction to Physical Anthropology

Three upper-division anthro courses, incl at least one 400-level course 9

CRIME AND JUSTICE STUDIES MINOR

CJ 101 Introduction to the Justice System 3
CJ 320 Police, Society & Justice or 332 Corrections 3
CJ 325 Criminal Law 3
Phil 103 Ethics 3
Soc 330 Juvenile Delinquency or 331 Criminology 3
Two or more of the following to total at least 21 cr for the minor:
- CJ 401 Justice Policy Issues
- CJ 422 Race, Gender, & Class in the Justice System
- For 235 Society & Natural Resources
- PolS 467 Constitutional Law
- PolS 468 Civil Liberties
- PolS 469 Judicial Process
- Psyc 311 Abnormal Psychology
- Psyc 320 Introduction to Social Psychology
- Soc 322 Racial & Ethnic Relations
- Soc 324 Sociology of Gender
- Soc 434 Family Violence

SOCIOLOGY MINOR

Soc 101 Introduction to Sociology 3
Soc 230 Social Problems or 220 Marriage & the Family 3
Soc 410 Methods of Social Research or research methods course acceptable to student's major field 3
Sociology electives (9 cr must be in upper-division courses) 12

Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Sociology/Anthropology/Justice Studies. See the College of Graduate Studies section of part 4 for the general requirements applicable to each M.A. degree.

Only the thesis option for the M.A. degree in anthropology is available. Course work will include either 30 credits plus a foreign language proficiency examination or 36 credits and no foreign language requirement. Students who as undergraduates did not take at least one course in each of the four subfields of anthropology and a course in statistics will be asked to do so (in consultation with an adviser) at the beginning of their graduate programs. No graduate credit will be awarded for courses taken to satisfy such deficiencies. Graduate students must demonstrate competence in each of the four subfields of anthropology. The M.A. core along with the expected undergraduate preparation (or courses taken as deficiencies as a graduate student) are designed for this purpose. The core of the M.A. program consists of Anth 510, 511, 521, and 530. Students who have already received credit for 410, 411, or 430 will substitute appropriate courses for 510, 511, or 530 with approval from the student's adviser. The remaining credits will be distributed among courses in supporting fields (at least 6) and anthropology electives. Both the 30- and 36-credit M.A. program must include at least 6 but no more than 10 thesis credits, although more than 10 credits of thesis may be taken. A minimum of 18 credits must be at the 500 level. Anthropology courses must be at the 400 or 500 level, while supporting courses can include 300 level. No more than 12 credits can be transferred from other institutions and an official copy of the student's transcripts from each institution must be on file in the Registrar's Office. Such institutions must have a graduate program and the work taken for graduate credit.

Division of Statistics

Allison R. Manson, Division Director (415 Carol Ryrie Brink Hall 83844-1104; phone 208/885-2929). *Faculty:* C. Randall Byers, Raymond Dacey, Brian C. Dennis, Edward O. Garton, Joel R. Hamilton, Paul Joyce, John J. Lawrence, Stephen S. Lee, R. Ashley Lyman, Allison R. Manson, Kenneth B. Newman, Bahman Shafii, R. Kirk Steinhorst, Christopher J. Williams.

Statistics encompasses course work in designing and analyzing experiments, planning and interpreting surveys, and exploring relationships among variables observed on social, physical, and biological phenomena. The applied nature of the program allows the student to develop data analysis tools for such diverse areas as business and economics, crop and animal production, biological sciences, human behavior, education, engineering, and natural resource management. The statistics program thus supports major programs in other disciplines. Within the Department of Mathematics, a statistics option is available under applied mathematics leading to a baccalaureate degree.

Graduate study in statistics is designed for two types of students. Students whose undergraduate degrees are in subject matter disciplines will prepare for a career involving the application of statistical methods to their particular area of interest. Students with degrees in mathematics, computer science, or similar areas will prepare for a career in technical data analysis, statistical computing, and teaching of introductory-level statistics.

All students who wish to do graduate work in statistics should have a background in quantitative methods including Math 275, Analytic Geometry and Calculus III, and 6 hours of statistics including Stat 401 or equivalent. Additionally, students should have knowledge of at least one higher level programming language.

Faculty members in the Division of Statistics will be happy to answer questions about specific programs and courses. Such questions can also be addressed to the division director (Brink 415; telephone 208/885-7341).

Courses

See part 6 for courses in Statistics (Stat).

Academic Minor Requirements

STATISTICS MINOR

Stat 251 Prin of Statistics or 301 Probability & Statistics 3
Stat 401 Statistical Analysis 3
Stat 422 Sampling Methods 2
Math 160 Survey of Calculus or 170 Analytic Geometry & Calculus 4
Math 330 Linear Algebra 3
Two of the following courses 5-6
- Stat 433 Econometrics
- Stat 437 Statistics for Business Decisions
- Stat 456 Quality Management
- Stat 457 Nonparametric Statistics or 514 Nonparametrics
- Math 451 Probability Theory

Graduate Degree Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Statistics. See the College of Graduate Studies section of part 4 for the applicable general requirements for M.S. degree.

An individual graduate program is tailored for the student, but all students must complete a basic core requirement of 15 credits and a thesis. The core requirements are Stat 451-452, 507, 510, and 521. A maximum of 6 credits of Stat 500 may be counted toward the degree.

Division of Teacher Education

Cherie R. Major, Division Director (404B Educ. Bldg. 83844-3082; 208/885-6587).

Elementary and Secondary Teacher Education Faculty: **George F. Canney, John Davis, Jack L. Dawson, Karen P. Guilfoyle, Georgia Johnson, Gwendolyn N. Kelly, Daniel Kmitta, Sally G. Machlis, Cherie R. Major, Elinor L. Michel, Michael R. L. Odell, Kim M. O'Reilly, Melvin J. Pedras, Richard Pollard, Elizabeth Popiel, F. William Powers.** ***Adjunct Faculty:*** **Kathryn M. Canfield-Davis, Teresa J. Kennedy, Heidi B. Rogers.** ***Affiliate Faculty:*** **Nancy R. Peterson, Mary Ann Ranells.**

Educational Administration Faculty: **Carolyn Keeler, Coord. (UI Boise Center 83712-7742; phone 208/364-4015), Gary C. Alexander, Jack L. Dawson, Gary Delka, Carolyn Keeler, Michael E. Tomlin.** ***Adjunct Faculty:*** **Jean A. Teasdale.**

Special Education Faculty: **Teresa S. Jentsch, Coord. (412 Education 83844-3082; phone 208/885-7677), Diane M. J. Baumgart, Jeanne Christiansen, N. Dale Gentry, Teresa S. Jentsch, Cindy S. Marble, Jennifer J. Olson.** ***Adjunct Faculty:*** **Mary T. Bostick, Julie Fodor, Robin Greenfield, Ron Seiler.** ***Affiliate Faculty:*** **Hazel E. Bauman, Joy Byram, James L. Christiansen, James Heidelberger, Thomas D. McFarland, Patrick P. Pickens, Linda K. Powers, Peggy Scuderi, Paul Swatsenberg, James E. Topp, Robert C. West, John Zimbelman.**

The professional degree majors in Teacher Education provide knowledge, skills, and experiences to enable teachers, administrators, and specialists to work effectively with K-12 students and schools. Students benefit from collaborative relationships and experience with schools and agencies.

Preservice teaching degree majors are offered in elementary, secondary, and special education (B.S.Ed.). Students should consult an adviser concerning requirements for degree and/or certification.

Graduate degree majors are offered in elementary education, secondary education, special education, and educational administration (M.Ed., M.S.). Education specialist degrees and certification are offered in elementary and secondary education, special education, advanced teacher certification (planned fifth year), principalship and superintendency. The doctorate is available in education (Ed.D., Ph.D.).

The Division of Teacher Education includes programs for elementary and secondary education, educational administration, and special education.

Elementary and Secondary Teacher Education. The undergraduate program in elementary and secondary education is in the process of a major redesign. All freshman and some transfer student majors enter the new program. The program includes the university core curriculum, educational core curriculum, program content courses, and a content concentration. Secondary students select academic majors and minors from subjects currently taught in secondary schools such as English, social studies, sciences, mathematics, art, and foreign languages. Elementary students select a content concentration in mathematics, science, social science, English, foreign language, arts, or an integrated concentration. Elementary students received a B.S.Ed. degree and secondary students may earn a B.S.Ed. degree through the College of Education or a B.A. or B.S. degree through the department and college administering the academic major.

Early and continuous field experiences are a hallmark of the new program, which culminates in a full year internship. The goals of the new program are to (1) recruit and retain high quality students though new admission, continuation, and exit criteria, (2) prepare teachers in a standards driven, integrated, and field-based program, (3) require a full year internship experience where school and university faculty teams work with cohorts of students, and (4) engage in continuing professional development for students, teachers, and university faculty to improve K-12 student performance.

Special Education. The undergraduate program prepares teachers to work with students who have intellectual, emotional and/or behavioral, language, sensory and/or physical disabilities.

Graduate Education/Elementary and Secondary Teacher Education. The program provides advanced professional and foundational courses that support graduate study in the College of Education. Advanced programs in the Elementary, Middle, and Secondary Teacher Education are (a) the Advanced Certification (planned fifth year) programs; (b) master's degree programs (either Master of Education or Master of Science) in elementary education and secondary education, and secondary education with certification; (c) education specialist degree programs in education, with emphases in elementary education, secondary education, and supervision and instructional leadership; and (d) doctoral degree programs (either Doctor of Education or Doctor of Philosophy) with emphases in elementary education, secondary education, and supervision and instructional leadership.

Research is not necessarily the primary emphasis in the master's programs; however, students choosing research-based programs have access to modern facilities for such programs. The Computer Laboratory, Early Childhood Center, Mathematics Education Laboratory, Science Laboratory, Reading Laboratory, Social Studies Laboratory, and Instructional Media Center all facilitate research in the field of education.

Persons interested in doctoral work should apply to the College of Education. Admission requirements for the doctoral program include: (a) a minimum grade-point average of 2.80 in undergraduate preparation, (b) a minimum grade-point average of 3.50 at the master's degree level or its equivalent, (c) a composite verbal and quantitative Graduate Record Examination score of at least 1050, and (d) acceptable letters of recommendation. Exceptions to the criteria may be made when documented by the Graduate Review Committee.

Graduate Education/Educational Administration. Educational Administration provides programs for the preparation of school administrators and for persons interested in teaching or administration in institutions of higher learning. Master's, education specialist, and doctoral degrees may be earned in the department.

An array of courses that draw on significant research and practice in leadership, management, and the supervision of instruction are offered. The preparation for prospective school principals includes courses in personnel administration, the principalship, research interpretation and use, the organization and administration of schools in America, supervision, school law, curriculum design, and interpersonal relations. Certification as a school principal accompanies successful completion of master's degree requirements in school administration.

At the education specialist degree level, the training emphasis is focused on superintendent certification for students who have master's degrees in administration. Students with master's degrees in related fields may achieve principal certification with an education specialist degree. The education specialist degree further expands leadership training in school/community relations, school facilities planning, school finance, curriculum evaluation, and theory in administration. Persons seeking certification in these programs must also enroll as interns for two semesters. All certification and degree programs require comprehensive examinations.

At the doctoral level (Ed.D. or Ph.D.), individualized programs may be directed to administration or teaching in higher education or toward significant leadership positions in public schools and other related agencies.

Persons interested in degree programs or administrative certification programs should contact the dean of the College of Education or members of the program faculty.

Graduate Education/Special Education. At the master's level, the program emphasizes preparation in general special education, low incidence (severe) disabilities, early childhood special education, program administration and consultation. The education specialist degree is designed to prepare personnel in the consulting, supervisory, and administrative competencies needed for leadership roles in public school special education programs. The doctoral program prepares special educators for positions of leadership in schools, state agencies, colleges, and universities. Major emphasis is placed on research, university level teaching, and systems change. Teaching endorsements may be obtained in the areas of general special education, severe disabilities, early childhood special education, consulting teacher, and special education director.

Faculty members are available to discuss programs in detail with interested persons. Requests for information or appointment can be made by letter or telephone call (208/885-6586).

Courses

See part 6 for courses in Educational Administration (EdAd), Library Science (LibS), Special Education (EDSP), and Teacher Education (EDTE).

Undergraduate Curricular Requirements

ELEMENTARY EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3), the general requirements for students preparing to teach at the elementary level (see College of Education section in part 4), and:

EDTE 326 Elementary School Mathematics Education	3
EDTE 336 Reading in the Elementary School	4
EDTE 338 Children's Literature	3
EDTE 375 Elementary School Art Methods	3
EDTE 420 Language, Learning, & Literacy Development	3
EDTE 421 Elementary School Social Studies Methods	3
EDTE 444 Elementary School Science Methods	3
MusT 381 (EDTE 381) Elementary School Music Methods I	3
PEP 250 Elementary Physical & Health Education	3
One of the following	2-3
Dan 220 Children's Dance	
Dan 404 ST: Creative Movement in the Elementary Classroom	
MusT 389 Orff, Kodaly, & Dalcroze	
TheA 105 Basics of Performance	

SECONDARY EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3), the general requirements for students preparing to teach at the secondary level (see College of Education section in part 4), one course in special methods applicable to secondary schools (EDTE 474, 475, 476, 477, 478, 479, H&S 323, or another approved special methods course), Literacy Methods for Content Learning (EDTE 463), and the satisfactory completion of one of the following options selected from the list headed "Teaching Majors and Minors" in the College of Education section, above:

A. Two 30-credit teaching majors.

B. One 40-credit teaching major and one 20-credit teaching minor.

C. One 30-credit teaching major and two 20-credit teaching minors.

D. One 60-credit teaching major.

SPECIAL EDUCATION (B.S.Ed.)

Required course work includes the university requirements (see regulation J-3), the general requirements for students preparing to teach at the elementary and/or secondary level, and the following courses (which will qualify the student for the Exceptional Child Certificate and Generalist K-12 endorsement):

EDSP 190, 290, 390 Special Education/Field Experience (1 cr each)	3
EDSP 275 Education of People with Disabilities	3
EDSP 280 Classroom Applications of Learning Theories	3
EDSP 377 Designing Instructional Programs	2
EDSP 378 Curriculum Development & Adaption	3
EDSP 421 Family & Community Involvement	3
EDSP 425 Evaluation of Children & Youth	2
EDSP 450 Students with Behavioral & Emotional Issues	3
EDSP 480 or EDSP 480 and ED 430 or EDSP 480 and ED 431 Practicum	14
EDSP 487 Language & Communication Development & Disorders	3

Students with a single major in special education also take:

EDTE 326 Elementary School Mathematics Education	3
EDTE 336 Reading in the Elementary School	4
EDTE 402 Practicum: Field Experience in Public School Settings	1
EDTE 420 Language, Learning, & Literacy Development	3

Graduate Degree Programs

Candidates must fulfill the requirements of the College of Graduate Studies and of the Division of Teacher Education. See the College of Graduate Studies section of part 4 for the general requirements applicable to each degree. Applicants for the M.S. or M.Ed. degree are expected to meet the requirements for the teaching certificate and one year of teaching experience.

Master of Science. General M.S. requirements apply.

Master of Education. General M.Ed. requirements apply.

Professional Degrees in Education. These post-master's programs are designed to give additional graduate preparation to those who wish to continue in teaching or enter into supervisory positions in the public schools. The education major is available in the Division of Teacher Education, with emphases in elementary education and secondary education. It is expected that these students will have had a minimum of two years of experience in public schools of which one was classroom teaching. A knowledge of basic statistics is highly recommended for beginning graduate work and essential to professional literacy. Professional degree programs require 60 hours of graduate work beyond the baccalaureate degree.

Education Specialist in Educational Administration. This sixth-year program is designed to prepare students for administrative positions up to and including the superintendency. Candidates with master's degrees in fields other than administration may acquire an education specialist degree while completing requirements for certification as a principal.

Doctor of Education. The Ed.D. and Ph.D. programs are designed for those persons who show promise in theory development and research, and who appear likely to provide instructional and/or administrative leadership. The programs aim to develop a comprehensive understanding of the field of education and the ability to identify and resolve pertinent problems in education. Divisional requirements for the Ed.D. degree are: 15 credits in research competency, including statistics and research; 18 credits in dissertation; 18 credits in a cognate area of which 9 should be taken outside of the College of Education; 30 credits in a major area of competency. The credits indicated in each area are minimums.

Doctor of Philosophy. See general statement about the doctoral programs with the Ed.D. degree above. Divisional requirements for the Ph.D. degree are: 21 credits in research competency, including statistics and research design; 18 credits in a cognate area of which 9 should be taken outside of the College of Education; 18 credits in dissertation; 30 credits in a major area of competency.

Teacher Certification and Professional Development. A person who holds a bachelor's degree and wishes to earn an elementary or secondary teaching certificate should talk to the director of the Division of Teacher Education about entry into the certification programs and obtaining a transcript analysis for the projected teaching majors/minors. Certification may be obtained at the graduate level in addition to the secondary education degree (M.Ed.).

Department of Theatre Arts

David Lee-Painter, Dept. Chair (118 Shoup Hall 83844-3072; phone 208/885-6465).
***Faculty:* David Lee-Painter, Charles S. Ney, Michelle S. Ney, Dean F. Panttaja.**

The study of theatre encourages the development of the whole person. Through performance, students gain a deeper understanding of themselves and human behavior; through design, students learn how to manipulate space, lighting, color, and texture; through the study of drama as an educational tool, students learn how to use the elements of theatre as performance, as well as drama as process. Because theatre encompasses so many disciplines, it is an excellent way of enhancing a general education, encouraging artistic sensitivity, and teaching students to work in collaboration with fellow artists.

The theatre curriculum at UI leads to a B.A., B.S., or B.F.A. degree and provides a broad base from which students may pursue a number of different career options. All students are required to complete a core of courses ensuring general competency in all areas of theatre. Those wishing to specialize in a particular aspect of theatre are able to do so through the use of electives. The Bachelor of Fine Arts degree is offered to those students who wish to embark on professional careers in theatre. Requirements are stringent and include constant monitoring of the student's progress. The student is an integral part of the department production process, fostering a close relationship with the theatre faculty and enabling the student to experience the kind of growth that comes through working with professional artists.

In the Hartung Theatre, UI has one of the finest theatre facilities in the Northwest. The 419-seat, semithrust theatre is complemented by one of the best equipped shops, costume inventories, and lighting and sound systems in the region. Additionally, the Kiva Theatre, with 135 seats, is a fully equipped theatre in the round. The Arena Theatre is a laboratory space in which student actors, directors, and technicians may experiment and develop their skills.

Graduate study at UI emphasizes acting, directing, design, and technical theatre. The department's size permits graduate students to take an active part in the process of theatre production. If qualified, students may be asked to assist the instructors in the teaching of basic skills to undergraduate students. The department emphasizes the creative thesis for the degree and graduate students have designed and directed major productions at the university.

The department offers professional graduate training in both performance and production areas. Normal admission requirements include a 3.0 GPA, a statement of goals or intent, three letters of recommendation, and a portfolio of design work or a four-six minute audition tape. Opportunities to design, perform, and direct departmental productions are ample and are considered to be an integral part of students' theatre training.

Students interested in pursuing a degree in theatre and who have further questions about the program should feel free to consult the department (telephone 208/885-6465).

Courses

See part 6 for courses in Theatre Arts (TheA),

Undergraduate Curricular Requirements

THEATRE ARTS (B.A. or B.S.)

Students taking B.A./B.S. or B.F.A. options in theatre arts must achieve a minimum grade of C in each theatre course taken to fulfill a requirement in the major before the student will be eligible for graduation. Students must maintain a minimum 2.00 overall GPA to be eligible to participate in departmental productions.

Required course work includes the university requirements (see regulation J-3), the general L&S requirements for either the B.A. or B.S. degree, and:

TheA 102 Theatrical Make-up	3
TheA 103, 104 Theatre Technology I, II	4
TheA 105-106 Basics of Performance	6
TheA 190 Theatre Practice I	2
TheA 201 Scene Design I	3
TheA 202 Costume Design I	3
TheA 205 Lighting Design I	3
TheA 210 U.S. Contemporary Theatre	3
TheA 305 Intermediate Acting	3
TheA 320 Theatre Management	2
TheA 371 Play Analysis	3
TheA 467-468 The Theatre	6
TheA 469 Modern Theatre	3
TheA 471 Directing	3
Electives in acting/directing (upper-division)	3
Electives in design/production	6
Courses in a related field approved by dept chair or established minor	20

THEATRE ARTS (B.F.A.)

The Bachelor of Fine Arts degree is an intense training program for students wishing to pursue a career in the professional theatre. It is divided into four specific areas of study within an area of concentration. Areas of concentration include but are not limited to: acting, technical production, and scenery, lighting, or costume design. Individual courses are chosen by the student and his or her adviser within those categories, allowing the degree to be tailored to the student's specific needs. Student progress is monitored each semester through performance juries and portfolio reviews. Students in the B.F.A. program are encouraged to take internships with professional theatre companies in the region as part of their program of study.

Students taking B.A./B.S. or B.F.A. options in theatre arts must achieve a minimum grade of C in each theatre course taken to fulfill a requirement in the major before the student will be eligible for graduation. Students must maintain a minimum 2.00 overall GPA to be eligible to participate in departmental productions.

Required course work includes the university requirements (see regulation J-3) and the departmental requirements for the B.S. or B.A., except that an approved related field or established minor is not required for the B.F.A. degree. Additional requirements include:

STUDIO AREA - 12-20 credits
A minimum of 12 credits is taken in course work directly related to the area of specialization. Students with a performance specialization are required to take an additional 8 credits.

RELATED STUDIO - 4-9 credits
A minimum of 4-9 credits is taken in a related studio area that generally pertains directly to the student's area of specialization.

CRAFT AREA - 11 credits
A minimum of 11 credits is taken in courses to develop specific craft skills associated with the studio area.

HISTORY/LITERATURE/CRITICISM - 3 credits
A minimum of 3 credits is taken in history or literature courses that relate directly to the studio area. Courses used to fulfill university and department core requirements may not be used to satisfy this requirement.

Academic Minor Requirements

TECHNICAL THEATRE MINOR

TheA 103, 104 Theatre Technology I, II	4
TheA 201 Scene Design I	3
TheA 202 Costume Design I	3
TheA 205 Lighting Design I	3
TheA 390 Theatre Practice II	2
TheA 464 Scenographic Techniques	3

THEATRE ARTS MINOR

TheA 102 Theatrical Make-up	3
TheA 103, 104 Theatre Technology I, II	4
TheA 201 Scene Design I	3
TheA 202 Costume Design I	3
TheA 305 Intermediate Acting	3
TheA 471 Directing	3

THEATRE ARTS PERFORMANCE MINOR

TheA 305-306 Intermediate Acting	6
Courses chosen from the following	12
TheA 150 Performance Lab I	
TheA 371 Play Analysis	
TheA 372 Methods in Characterization	
TheA 373 Advanced Acting	
TheA 407 Acting Shakespeare	
TheA 408 Styles of Acting	
TheA 471 Directing	

Graduate Degree Program

The Master of Fine Arts degree at the University of Idaho is a rigorous three-year, 60-72 hour degree designed for talented students wishing to prepare themselves for a career in the professional theatre. Degree tracks in areas of design, directing, performance and technical production are built around specific curriculum categories and individual courses are selected by the candidate in consultation with his or her major professor. Student progress is monitored by portfolio review or performance jury each semester. Exit procedures from the program include a creative project and comprehensive exam.

Candidates must fulfill the general requirements of the Graduate College and a minimum of 60 credits from the course groupings listed below:

STUDIO AREA—12-16 credits. A minimum of 12 credits are taken in course work directly related to an area of specialization. The studio area of study is individualized to the candidate's specific needs and areas of weakness. Candidates will enroll in M.F.A. Studio each semester of residence excluding summers.

RELATED STUDIO AREA—9-12 credits. A minimum of 9 credits are taken in a related studio area which generally pertains directly to the candidate's area of specialization.

CRAFT AREA—8-12 credits. A minimum of 8 credits are taken in courses to develop specific skills associated with the studio area.

HISTORY/LITERATURE/CRITICISM—9-12 credits. A minimum of 9 credits are taken in history or literature courses which relate directly to the studio area. Courses taken to fulfill this requirement might include dramatic literature, social history, art history, architectural history, and theatre history.

INTERNSHIP—12 credits. A maximum of 12 credits of TheA 598, Internship, are taken to augment course work with professional experiences with professional regional theatres in the area.

MFA JURY/PORTFOLIO REVIEW—6 credits. A minimum of 6 credits of TheA 515, MFA Jury/Portfolio Review, must be completed with a grade of B or better before the awarding of the degree. A maximum of 1 credit of TheA 515 may be taken each semester.

M.F.A. EXIT PROCEDURES—3 credits. Exit procedures vary with the area of specialization. In each case the exit procedure revolves around a thesis project or exam completed sometime in the last two semesters of residence. Projects are designed in consultation with the candidate's graduate committee. Candidates must enroll in TheA 596, M.F.A. Exit Project, during the semester the project is undertaken.

Program in Women's Studies

Joan M. West, Coordinator (308 Admin. Bldg. 83844-3174; phone 208/885-7866).
Faculty: **Katherine G. Aiken, Janice Capel Anderson, Ginna M. Babcock, Anna Banks, Mary Clearman Blew, Laurel J. Branen, Mary H. DuPree, Martha J. Einerson, Janice W. Fletcher, Stephan P. Flores, Kathryn Paxton George, Nicholas F. Gier, Candida Gillis, H. Lynne Haagensen, Sandra Haarsager, Walter A. Hesford, Eric L. Jensen, Georgia Johnson, Virginia W. Junk, Ellen E. Kittell, Cecelia E. Luschnig, Sheila O'Brien, Patricia Riley, Dene K. Thomas, Nancy J. Wanamaker, Joan M. West, J. Gary Williams, Laurie J. Wilson.**

Women's Studies connects different kinds of knowledge across many subjects. The minor offers an interdisciplinary program that uses gender to examine such cultural variables as class, ethnicity, nationality, sexual identity, and age. The courses encourage students to develop critical thinking skills that will empower them as active learners and that will lead them to a better understanding of differences in the society that surrounds them. Fields such as gerontology, mass communications, recreation, criminology, economics, health services, social work, law, psychology, and education are increasingly offering special career opportunities to students with a background in Women's Studies.

Courses

See part 6 for courses in Women's Studies (WmSt).

Academic Minor Requirements

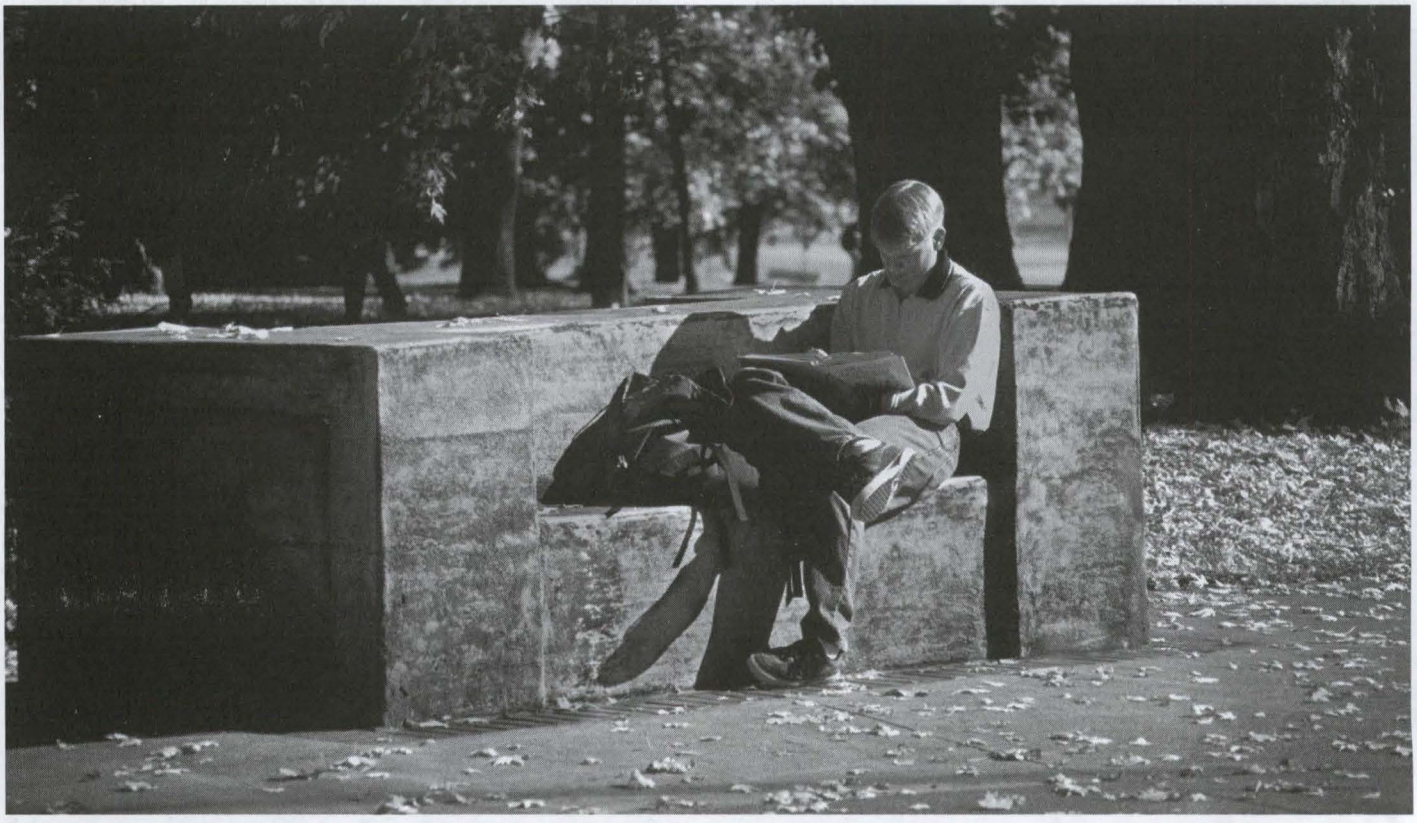
WOMEN'S STUDIES MINOR

WmSt 201 Women, Culture, & Society: Intro to Women's Studies 3
Courses chosen from the following 12
- Engl/FLEN 481 Women's Literature (3 cr)
- FCS 445 Issues in Work & Family Life (3 cr)
- Hist 357 Women in Pre-Modern European History or Hist 420 History of Women in American Society (3 cr)
- Phil 425 Feminism & Philosophy (3 cr)
- Psyc 330 Human Sexuality (3 cr)
- Soc/Anth 322 Racial & Ethnic Relations or Soc 324 Soc of Gender (3 cr)

Courses in two different disciplines from the list above or the following 6
- Comm 432 Gender & Communication (3 cr)
- FCS 129 Dress & Culture (3 cr)
- FCS 240 Intimate Relationships (3 cr)
- FCS 346 Personal & Family Finance & Management (4 cr)
- FCS 405 Eating Disorders (2 cr)
- FCS 440 Contemporary Family Relationships (3 cr)
- H&S 311 Acquaintance Rape (3 cr)
- Phil 252 Biomedical Ethics (3 cr)
- Psyc 320 Introduction to Social Psychology (3 cr)
- Soc 325 Sociology of the Family (3 cr)

WmSt 499 Directed Study (a synthetic paper) 1

With prior approval of the Women's Studies committee, a student may also include credit from survey courses, special topics courses, or seminars meeting the guidelines for inclusion of courses in a Women's Studies minor. No more than 3 credits may count toward both the student's major and minor.



Course Numbering System and Key to Abbreviations and Symbols

Numbering System

Courses numbered 010-099 are remedial-level courses carrying no credit; those numbered 100-299 are lower-division courses primarily for undergraduates; 300-499 are upper-division courses primarily for advanced undergraduates, fifth-year students, and graduates; courses numbered 500-600 are intended for and are restricted to students enrolled in the College of Graduate Studies (see regulation B-8 in part 3 for the exception to this rule); courses numbered 800-999 are intended for and are restricted to students enrolled in the College of Law.

Letter Designations with Numbers

Certain course numbers also include letters preceding the arabic number - R101, C100, etc.:

C; (C) - when included as part of the course number, offered by correspondence study only; when shown in parentheses following the number of credits, also offered by correspondence study.

H - offered only in University Honors Program.

ID - cooperative course with Washington State University offered at the University of Idaho and available to WSU students.

J - courses conducted jointly, e.g., MusA J365/J565 (Chamber Ensemble), in which students' assignments and expected levels of performance reflect the levels for which they are enrolled.

R - offered only at the University of Idaho at Idaho Falls.

WS - cooperative course with Washington State University offered at WSU and available to University of Idaho students. For complete description, consult the WSU catalog.

Subtitled Courses

An "s" in parentheses between the number and title of a course indicates that the course may be offered under the main title and/or with an appended subtitle, e.g., "Seminar" and/or "Seminar in the History of the Pacific Northwest." The specific area normally will be listed in the Time Schedule as a separate section of the main course.

Credit Designations

Immediately following each course title, the number of credits authorized is shown in parentheses. Typical designations are:

(3 cr) - three semester credits (for courses with more than one number, e.g., 101-102-103, the three credits apply to each number).

(1-3 cr) - one to three semester credits.

(3 cr; 2 cr) - three credits fall semester; two credits spring semester.

(1-3 cr, max 3) - one to three credits during any academic session and the course may be repeated until the maximum of three credits has been earned.

(3 cr, max 12) - three credits during any academic session and the course may be repeated until the maximum of twelve credits has been earned (for a course with more than one number, e.g., 301-302, the maximum is overall and applies to the combined numbers).

(cr arr) - credits to be arranged (may be repeated for credit without restriction as to maximum).

(1-3 cr, max arr) - one to three credits during any academic session, and the course may be repeated.

Parenthetical Course Numbers

Course numbers that appear in parentheses after the course credits are former numbers and appear for one edition only.

Other Abbreviations

alt/yrs - offered in alternate years
coreq - corequisite
cr - credit
dem - demonstration
dept - department
disc - discussion
div - division
exam - examination
GPA - grade-point average
grad - graduate
hr - hour
intro - introduction(-tory)
jr - junior
lab(s) - laboratory(-ies)
lec - lecture(-s)
perm - permission of instructor
perm of dept - permission of department or subject-field chair
P/F - graded on the basis of pass or fail
prereq - prerequisite
reqd - required
soph - sophomore
sr - senior
undergrad - undergraduate

Accounting

Marcia S. Niles, Chair, Dept. of Accounting (104 Continuing Education Bldg. 83844-3169; phone 208/885-6453).

Enrollment in 300- and 400-level accounting courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.35 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisite to a course for which they are otherwise eligible may register for the course with the instructor's approval.

Acct **200** (s) **Seminar** (cr arr). Prereq: perm.

Acct **201 Introduction to Financial Accounting** (3 cr) (C). Overview of the nature and purpose of general purpose financial statements provided to external decision makers; emphasis on use of financial statement information. May involve evening exams. May be taken before or after Acct 202.

Acct **202 Introduction to Managerial Accounting** (3) (C). Intro to cost behavior and managerial use of accounting information for planning, control, and performance evaluation. May involve evening exams. May be taken before or after Acct 201.

Acct **203** (s) **Workshop** (cr arr). Prereq: perm.

Acct **204** (s) **Special Topics** (cr arr). Prereq: perm.

Acct **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Acct **299** (s) **Directed Study** (cr arr). Individual sections may be graded P/F. Prereq: perm.

Acct **300 Accounting Concepts and Systems** (3 cr). Foundations of accounting concepts and theories with emphasis on the role of information in decision making within and about organizations; conceptual framework of accounting; intro to accounting systems; includes computer applications reinforced by practice cases; wordprocessing and spreadsheet proficiency reqd. May include evening exams. Prereq: Acct 201, 202, and Stat 271.

Acct **301 Corporate Accounting and Reporting** (3 cr). Preparation of general purpose financial statements for external users based on U.S. generally accepted accounting principles for assets, liabilities, stockholders' equity; emphasis on concepts behind current standards; discussion of alternate theories including international accounting standards. May include evening exams. Prereq: Acct 300; prereq or coreq: Acct 305.

Acct **305 Accounting Information Systems** (3 cr). Role of accounting information systems in effective control of organizations; coverage of internal controls, flowcharting, systems analysis and design, implementation and evaluation as they relate to the major transaction cycles; revenue, purchases, production, payroll, cash receipts and disbursements. May include evening exams. Prereq: Acct 300; prereq or coreq: Acct 301.

Acct **381 Accounting for Managers and Investors** (3 cr). Not open for cr to accounting majors. Development of knowledge and skills relating to the use of accounting information to enhance decision making. May involve some evening exams. Prereq: Acct 201, 202.

Acct **385 Cost and Management Accounting** (3 cr). Design and use of cost management systems to support decision making and influence behavior; includes tracing costs to processes, activities, products, and customers; budgeting and responsibility accounting. May include evening exams. Prereq: Acct 300; prereq or coreq: Acct 301 and 305, and Bus 370 or 340-345.

Acct **400** (s) **Seminar** (cr arr). Prereq: perm.

Acct **403** (s) **Workshop** (cr arr). Prereq: perm.

Acct **404** (s) **Special Topics** (cr arr). Prereq: perm.

Acct **J405/J505** (s) **Professional Development** (cr arr). Credit earned in these courses will not be accepted toward graduate degree programs. Prereq: perm.

Acct **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Acct **J430/J530 Accounting for Public Sector Entities** (3 cr). Conceptual and procedural issues involving accounting, reporting, and auditing public sector organizations; topics include state and local governmental accounting principles, GASB/FASB jurisdiction over not-for-profit organizations, federal financial and performance auditing standards, and relevant current issues. Additional class meetings, projects, and/or assignments required for graduate credit. May include evening exams. Prereq: Acct 301.

Acct **483 Federal and State Taxes I** (3 cr). Income determination, deductions, accounting methods, sales of property, deferral of tax, taxation of the individual, tax research, with primary emphasis on tax planning; the case method is used. May include evening exams. Prereq: BLaw 265, Acct 301.

Acct **J484/J584 Federal and State Taxes II** (3 cr). Taxation of corporations and partnerships with emphasis on tax planning, tax research; the case method is used. Additional class meetings, projects, and/or assignments required for graduate credit. May include evening exams. Prereq: Acct 483.

Acct **J486/J586 Contemporary Management Accounting Issues** (3 cr). Synthesis of managerial accounting skills through case analysis, written and oral reports; topics include decision making, divisional performance evaluation, transfer pricing, activity based costing, theory of constraints, and total quality management. Additional class meetings, projects, and/or assignments required for graduate credit. May include evening exams. Prereq: Acct 385.

Acct **490 Advanced Corporate Accounting and Reporting** (3 cr). In-depth coverage of selected topics in financial accounting designed to provide students with research skills needed to successfully interpret and apply accounting standards as promulgated by official bodies; topics include complex areas in liability accounting such as leases and pensions, pooling and purchase methods of consolidations, and earnings per share. May include evening exams. Prereq: Acct 301.

Acct **492 Auditing and Controls** (3 cr). Value of the audit, concepts of attestation and relevant reporting, theories of evidence, development of risk analysis approach to auditing, with emphasis on internal and performance auditing; documentation and understanding of internal control structure, environment, system design, procedures and testing. May include evening exams. Prereq: Acct 301, 305, and 385.

Acct **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Acct **498 Accounting Internship Program** (1-3 cr, max 3). Formalized learning experience in an actual work setting. Students work within an accounting related field (accounting, auditing, and taxation) and commit to a minimum of 50 hours of direct supervised work for each semester credit. May include evening exams. This course does not count as an undergraduate accounting elective. Graded P/F. Prereq: senior status.

Acct **499** (s) **Directed Study** (cr arr). Individual sections may be graded P/F. Prereq: perm.

Acct **500 Master's Research and Thesis** (1-6 cr, max 6). Prereq: perm.

Acct **501** (s) **Seminar** (cr arr). Prereq: perm.

Acct **502** (s) **Directed Study** (cr arr). Individual sections may be graded P/F. Prereq: perm.

Acct **504** (s) **Special Topics** (cr arr). Prereq: perm.

Acct **505** (s) **Professional Development** (cr arr). See Acct J405/J505.

Acct **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Acct **530 Accounting for Public Sector Entities** (3 cr). See Acct J430/J530.

Acct **561 Comparative Accounting Theory** (3 cr). Seminar on comparative accounting theory and practice including the role of accounting information in financial markets and the impact of those markets on accounting disclosures; introduction to empirical accounting research, the role of standard setting entities, international harmonization of accounting and auditing standards, globalization of business operations, and fluctuations in currency exchange rates. Prereq: Acct 301.

Acct **570 Advanced Accounting Systems Analysis and Controls** (3 cr). Emphasis on the role of computer and information technology in the development, analysis, and operation of accounting information systems; includes advanced coverage of accounting transaction cycles, accounting systems planning and analysis, accounting system design, accounting systems implementation and operation, and the accounting system internal control structure. May include evening exams. Prereq: Acct 305.

Acct **582 Cost Management Systems** (3 cr). Not for accounting majors. Carries no credit toward master's degree in accounting. Design and use of cost management systems to support decision making and influence behavior; includes the economics of costs to processes, products, and customers; activity-based cost management; cost estimation; performance measurement; capital budgeting; and project budget statements. May involve evening exams. Prereq: Acct 202 and Engr 360 or Bus 301.

Acct **584 Federal and State Taxes II** (3 cr). See Acct J484/J584.

Acct **585 Federal Gift and Estate Taxation** (3 cr). Gift and estate tax consequences on property transfer during life and at death, tax research, and estate planning and personal financial planning. May include evening exams. Prereq: Acct 483 (Acct J484/J584 recommended).

Acct **586 Contemporary Management Accounting Issues** (3 cr). See Acct J486/J586.

Acct **590 Advanced Auditing Seminar** (3 cr). Independent auditor's role, legal responsibilities, and code of conduct; concepts, standards, and methods in audit judgment formulation; includes statistical and other sampling methods and EDP auditing techniques. Prereq: Acct 492, 570.

Acct **592 Financial Accounting and Reporting Seminar** (3 cr). Accounting for complex modern business transactions including consolidations, partnerships, and financial instruments; students are expected to conduct research in the professional literature and document their findings and conclusions in cases where there may be no authoritative guidance; cases are considered from the perspective of the reporting entity, its auditors, the users of the financial statements and other stakeholders. Prereq: Acct 561 and 490.

Acct **598** (s) **Internship** (1-3 cr, max 3). Career relevant learning experience in actual work setting with professional-level responsibilities. Students work within an accounting related field (accounting, auditing, and taxation) and commit to a minimum of 50 hours of direct supervised work for each semester credit. A paper documenting relevance of work experience and a presentation to undergraduate accounting students may be required.

Acct **599** (s) **Research** (1-6 cr, max 6). May count only 3 cr toward degree. Student works with individual professor to design a research study, collect and analyze data, and prepare written report. Prereq: at least one course in research methodology and perm.

COURSES

Adult, Counselor, and Technology Education

James M. Cassetto, Interim Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).

ACTE **200** (s) **Seminar** (cr arr). Prereq: perm.

ACTE **203** (s) **Workshop** (cr arr). Prereq: perm.

ACTE **204** (s) **Special Topics** (cr arr). Prereq: perm.

ACTE **110 Technology and Society** (3 cr). Same as ITED 110. The relationship between technology and social change; previous course work in technology is not essential.

ACTE **299** (s) **Directed Study** (cr arr). Prereq: perm.

ACTE **J351/J551 Principles and Philosophy of Professional-Technical Education** (3 cr) (C). ACTE 351 same as AgEd 351; ACTE J351/J551 same as PTE J351/J551. Overview and interpretation of history, aims, and purposes of public education and professional-technical education; issues and programs comprising professional-technical education in Idaho and the U.S. Students who take course at grad level are reqd to complete additional assignments, papers, and/or presentations.

ACTE **400** (s) **Seminar** (cr arr). Prereq: perm.

ACTE **403** (s) **Workshop** (cr arr). Graded P/F. Prereq: perm.

ACTE **404** (s) **Special Topics** (cr arr). Prereq: perm.

ACTE **J405/J505 Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Professional development and enrichment. Additional projects/assignments reqd for grad cr.

ACTE **J418/J518 Learning Styles** (3 cr). Same as AdEd and PTE J418/J518. Identify and provide experience in administration, interpretation, and elements of theoretical bases for contemporary learning styles instruments. Additional projects/assignments reqd for grad cr.

ACTE **J426/J526 Instructional Design and Curriculum** (3 cr). ACTE 426 same as ITED 426; ACTE J426/J526 same as PTE J426/J526. Instructional design systems and curriculum development as a systematic method of designing, carrying out, and evaluating the total process of teaching and learning; based on research in human learning and communication, employing a combination of human and non-human resources to bring about effective instruction. Additional projects/assignments reqd for grad cr.

ACTE **430 Advisory Committees and Student Organizations** (3 cr) (VoEd 430). Organizing and maintaining effective advisory committees; development of leadership skills; techniques and procedures for establishing a professional-technical student organization.

ACTE **444 Diverse Populations and Individual Differences** (2-3 cr) (VoEd 444). Same as FCS 444. Examines the impact of individual differences on teaching and learning.

ACTE **445 Proseminar in Professional-Technical Education** (1 cr, max 2) (VoEd 445). Professional issues in education; orientation to practicum, career placement, and entry level teaching. Coreq: enrollment in senior practicum. Fall semester will require an additional 8-hr Saturday session for CPR and first aid training.

ACTE **457 Transitioning to Work** (3 cr) (VoEd 457). Same as BuEd 457. Planning and managing cooperative, technical preparation, and other transitional programs.

ACTE **460 Using Internet-Based Career Information in the Classroom** (2-3 cr) (VoEd 460). Preparation of new teacher candidates to utilize the vast array of career information on the Internet for assisting students in career planning.

ACTE **471 Practicum: Professional-Technical Education Teaching** (3-10 cr, max 10). Same as PTE 471. Secondary majors are reqd to enroll for 10 cr. Supervised teaching in approved professional-technical programs at secondary schools or area professional-technical schools. Graded P/F. Prereq: ED 314, or ACTE 426, PTE 472, GPA of 2.50, and perm of dept. (Submit application via director of ACTE to director of clinical experiences in teacher education.)

ACTE **499** (s) **Directed Study** (cr arr). Prereq: perm.

ACTE **501** (s) **Seminar** (cr arr). Prereq: perm.

ACTE **502** (s) **Directed Study** (cr arr). Prereq: perm.

ACTE **503** (s) **Workshop** (cr arr). Prereq: perm.

ACTE **504** (s) **Special Topics** (cr arr). Prereq: perm.

ACTE **505 Professional Development** (cr arr). See ACTE J405/J505.

ACTE **507 The Future of Education and Work** (3 cr). Same as PTE 507. Proactive study of the potential futures in education and work; examination of futurist theory and the change process.

ACTE **526 Analysis and Curriculum Development** (3 cr) (VoEd 526). See ACTE J426/J526.

ACTE **543 Administration and Supervision of Learning Programs** (3 cr). Same as AdEd, ITED, and PTE 543. Advanced study of the administrative and supervision responsibilities needed for learning enterprises and systems; personnel management and accountability in human resources development.

ACTE **555 Program Evaluation for the Training and Learning Enterprise** (3 cr). Same as PTE 555. Procedures for establishing the parameters of an evaluation, the role of formative/summative evaluations, evaluation strategies, designing mixed method evaluation and reporting.

ACTE **560 Advanced Theory and Practice of Career Development** (3 cr) (VoEd 560). See CASP 560.

ACTE **566 Classroom Counseling Strategies** (3 cr) (VoEd 566). Provides teachers with basic knowledge of counseling techniques for use in classroom and in individual meetings with students; required class for those seeking special needs certificate.

ACTE **570 Principles and Concepts of Research** (3 cr) (VoEd 570). Same as AdEd 570. Reasons and rationale for quantitative analyses; assumptions needed for selecting an analytical strategy.

ACTE **571 Accessing, Organizing, and Synthesizing Data** (3 cr) (VoEd 571). Same as AdEd 571. Uses of computer-based statistics packages, document retrieval services, and text-editing systems in research. Prereq: Stat 251 or perm.

ACTE **581 Theory, Practices, and Challenges of Leadership** (3 cr). Same as AdEd and PTE 581. Analysis and study of leadership of the human resource in organizations; theories, styles, and methods of effective leadership developed from past leaders blended with current models of leadership.

ACTE **582 Peer Coaching and Supervision for Educators** (2 cr) (VoEd 582). Observation techniques, conferencing, and feedback skills; structuring peer coaching programs.

Adult Education

James M. Cassetto, Interim Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).

AdEd **400** (s) **Seminar** (cr arr). Prereq: perm.

AdEd **403** (s) **Workshop** (cr arr). Graded P/F. Prereq: perm.

AdEd **404** (s) **Special Topics** (cr arr). Prereq: perm.

AdEd **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree program, but may be used in a fifth-year program. Additional projects/assignments reqd for grad cr.

AdEd **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AdEd **J418/J518 Learning Styles** (3 cr). See ACTE J418/J518.

AdEd **ID&WS428 Program Development in Adult Education** (3 cr). WSU Ag Ed 401. Planning, development, implementation, and evaluation of adult education and training programs in a variety of settings.

AdEd **J473/J573 Foundations of Adult Education** (3 cr) (C). Philosophical, economic, sociological, and psychological bases of adult education; roles, limitations, and coordination of adult education, domestic and international programs—public and private sector. Additional projects/assignments reqd for grad cr.

AdEd **J474/J574 The Adult Learner** (3 cr) (C, 474). Psychological, social, and physiological characteristics of adult learners; relationships to family, friends, and fellow citizens.

AdEd **J476/J576 Communication Skills for Teachers of Adults** (3 cr). Development of communication skills for use with culturally diverse adults; verbal and nonverbal techniques for improving communication skills. Additional projects/assignments reqd for grad cr.

AdEd **498** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

AdEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

AdEd **500** (s) **Master's Research and Thesis** (cr arr).

AdEd **501** (s) **Seminar** (cr arr). Prereq: perm.

AdEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

AdEd **503** (s) **Workshop** (cr arr). Graded P/F. Prereq: perm.

AdEd **504** (s) **Special Topics** (cr arr). Prereq: perm.

AdEd **505** (s) **Professional Development** (cr arr). See AdEd J405/J505.

AdEd **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AdEd **510 Foundations of Workforce and Human Resource Education** (3 cr). Advanced study of the foundations and basis for workforce and human resource education programs.

AdEd **516 Life Span Development** (3 cr). Conceptual overview of stages of development from infancy through the aged and implications to the educational process.

AdEd **518 Learning Styles** (3 cr). See ACTE J418/J518.

AdEd **528 Program Planning and Development** (3 cr). Program planning and development strategies for learning enterprise workers.

AdEd **543 Administration and Supervision of Learning Programs** (3 cr). See ACTE 543.

AdEd **561 Helping Skills in Adult Education** (3 cr). Instruction in helping skills and problem management approaches for use in current professional and personal situations; skills for effective listening and to provide appropriate problem solving support.

AdEd **562 Conciliation Training** (3 cr). Training in mediation and conciliation skills that help people resolve common disputes, especially neighbor-to-neighbor disputes; based on recognized adult community conciliation training models.

AdEd **563 Mediation and Conflict Management** (3 cr). Designed for application in the classroom, at home, and in the community; skills include mediation strategies, negotiation skills, effective problem solving and conflict management techniques, and special issues such as confidentiality, ethics, handling impasse, power balancing, and handling violence.

AdEd **568 Writing for Publication** (3 cr). Development of knowledge, skills, and potential of researchers and other writers desiring to prepare and publish manuscripts in education or other professional and trade journals; technical and theoretical aspects of writing for publication and the process of manuscript preparation, submission, and editing.

AdEd **570 Principles and Concepts of Research** (3 cr). See ACTE 570.

AdEd **571 Accessing, Organizing, and Synthesizing Data** (3 cr). See ACTE 571.

AdEd **573 Foundations of Adult Education** (3 cr). See AdEd J473/J573.

AdEd **574 Psychology of Adult Learners** (3 cr). See AdEd J474/J574.

AdEd **575 Strategies for Teaching Adults** (3 cr). Design and application of teaching strategies for learning domains and learning styles appropriate for adult learners.

AdEd **576 Communication Skills for Teachers of Adults** (3 cr). See AdEd J476/J576.

AdEd **577 Organizational Development** (3 cr). Planned change strategies for human resources in organizations; motivation, training/re-training, assessing, and crafting the corporate culture through educational efforts; assessing the knowledge skill gaps in the human resources.

AdEd **581 Theory, Practices, and Challenges of Leadership** (3 cr). See PTE 581.

AdEd **583 Problems and Techniques of Group Leadership** (3 cr). Development of an understanding of groups, group behavior, development and socialization of groups, and nature of power, conflict, and leadership in groups; intended for adults who spend time with other adults in groups, committees, teams, or other relationship configurations; emphasis on leadership aspects of group behavior and participation.

AdEd **589 Critical Thinking** (2-3 cr). See EdAd 589.

AdEd **597** (s) **Practicum** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

AdEd **598** (s) **Internship** (cr arr). Supervised experience in teacher education, administration, supervision, or ancillary services in adult education. Graded P/F. Prereq: perm.

AdEd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

AdEd **600 Doctoral Research and Dissertation** (cr arr).

Aerospace Studies

Chester G. Herbst, Head (UI Shoup Hall 83844-2005, phone 208/885-6129; or Washington State Univ. Kruegel Hall, phone 509/335-5598; http://www.wsu.edu:8080/~afrotc.

Aero **101-102 The Air Force Today** (2 cr). Survey course that focuses on organizational structure and missions of Air Force organizations; "officership" and professionalism; introduction to communicative skills; weekly lab consisting of Air Force customs and courtesies, health and physical fitness, and drill ceremonies is mandatory for cadets. One lec and 2 hrs of lab a wk.

Aero **201-202 The Air Force Way** (2 cr). Survey course designed to facilitate the transition into the Air Force; topics include Air Force heritage, Quality Air Force, ethics and values, introduction to leadership, and continued application of communication skills; a weekly lab of applied leadership exercises is required for cadets. One lec and 2 hrs of lab a wk.

Aero **291 Four-Week Field Training Course** (2 cr). Intensive study of military education, experience in leadership, and management at an active Air Force installation. Prereq: Aero 101-102, 201-202, and perm of dept (by interview).

Aero **292 Six-Week Field Training Course** (6 cr). Applicants must apply by the November before attending field training. Intensive study of academic core course work and military education at an active Air Force installation. Prereq: junior standing and perm of dept (by interview).

Aero **299** (s) **Directed Study** (cr arr). Prereq: perm of dept.

Aero **311-312 Air Force Leadership and Management** (4 cr). Leadership and quality management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer; case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied; a weekly lab provides advanced leadership experience in officer-type activities, giving students the opportunity to apply leadership and management principles of this course (the lab is mandatory for cadets). Three lec and 2 hrs of lab a wk.

Aero **ID391 Private Pilot Ground School** (2 cr). WSU Aero 391. All aspects of preparation for the FAA Private Pilot Written Test.

Aero **ID392 Instrument Pilot Ground School** (2 cr). WSU Aero 392. All ground-based aspects of instrument flying to prepare students to take the FAA Instrument Pilot Written Test.

Aero **411-412 National Security Affairs/Preparation for Active Duty** (4 cr). An examination of the national security process, regional studies, advanced leadership ethics, and Air Force doctrine; focus of the military profession, officership, military justice, civilian control of the military, preparation for active duty, and refinement of communication skills; a lab consisting of advanced leadership experiences is mandatory for cadets Three lec and 2 hrs of lab a wk.

Aero **499** (s) **Directed Study** (cr arr). Prereq: perm of dept.

Agricultural Economics

Russell V. Withers, Interim Head, Dept. of Agricultural Economics and Rural Sociology (39A Iddings Wing, Ag. Sc. Bldg. 83844-2334; phone 208/885-6264; e-mail rwithers@uidaho.edu).

AgEc **101 Agricultural Economics and Agribusiness** (3 cr) (C). Applications of economic and business principles to the agriculture industry; factors affecting production and marketing of agricultural products.

AgEc **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgEc **ID&WS278 Principles of Farm and Ranch Management** (4 cr). WSU Ag Ec 340. AgEc WS278 available only to students at off-campus locations. Decision making and profit maximization using economic principles, records, enterprise analysis, and comparison of alternative farming practices. Three lec and one 2-hr lab a wk. Prereq: Econ 202 or perm.

AgEc **289 Agricultural Markets and Prices** (3 cr). Economics of agricultural markets and pricing institutions; analysis of supply, demand, elasticity, futures markets; institutional arrangements in food marketing. Prereq or coreq: Econ 202.

AgEc **332 Economics of Agricultural Development** (3 cr). Problems associated with the economics of development of major agricultural areas of the world. Prereq: principles of economics or perm.

AgEc **356 Agricultural Programs and Policies** (3 cr). Goals, methods, results of economic programs and policies in agriculture, including role of governmental and farm organizations. Prereq: Econ 201, 202.

AgEc **ID361 Farm and Natural Resource Appraisal** (3 cr). Same as For 361. WSU Ag Ec 361. Methods; factors affecting the value of land and related resources; valuations for loans, sale, assessment, condemnation, and other purposes; procedures used by governmental and commercial agencies. One 1-day field trip. Prereq: AgEc 278 or Econ 202 or perm.

AgEc **370 Natural Resource Management** (3 cr). Course available only to students at off-campus locations. Efficiency, equity, resource conservation, and environmental preservation as management goals; principles of resource valuation; single-use and multiple-use management; property rights, externalities, and related policy issues; methods for cost-benefit, trade-off, and economic and environmental impact analysis; current resource conflict issues. Prereq: Econ 201, Math 143.

AgEc **383 Economics for Natural Resource Managers** (3 cr). See For 383.

AgEc **391 Agribusiness Management** (3 cr). Economic theory of business; applications of management to agricultural processing and service firms; accounting, statistics, and efficiency studies for problem-solving. Prereq: Econ 202 and 3 cr in accounting.

AgEc **394 Analytical Techniques in Agribusiness and Economics** (3 cr). Linear equations, linear programming, marginal analysis, and statistical methods applied to problem solving in agribusiness and economics. Prereq: Econ 352 and Math 160 or equiv.

AgEc **398** (s) **Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

AgEc **404** (s) **Special Topics** (cr arr). Prereq: perm.

AgEc **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgEc **J409/J509 Mathematical Economics** (3 cr). Same as Econ J409/J509. Economic models, application of matrix algebra and calculus to economics, comparative statics, optimization models, and mathematical programming. Primarily designed for graduate students; undergraduate students intending to pursue graduate studies or inclined to develop greater quantitative rigor may enroll with permission of the instructor and adviser. Prereq: Math 170 or equiv, Econ 351-352 or equiv, or perm.

AgEc **WS430 Financing Agribusiness Firms** (3 cr). WSU Ag Ec 430.

AgEc **WS435 Natural Resource Law** (3 cr). WSU Ag Ec 435. Analysis of federal and state courts resolution of real-world conflicts in land and water use.

AgEc **447 Economics of Developing Countries** (3 cr). See Econ 447.

AgEc **451 Land and Natural Resource Economics** (3 cr). Agricultural, forest, and mineral land use and classification; factors affecting land use; ownership, tenure, taxation, values, credit, and governmental policies. Prereq: Econ 352.

AgEc **453 Agricultural Price Analysis** (3 cr). Analytical tools for explaining and predicting price behavior of agricultural products; application of economics and statistics to price analysis. Prereq: Econ 352 and Stat 251, or perm.

AgEc **ID467 Economics of Rural Community Development** (3 cr). Economic theory, analytical methods, and literature relevant to study of development of rural areas. Prereq: Econ 201, 202.

AgEc **470 Public Law and Policy Analysis** (3 cr). Course available only to students at off-campus locations. Constitutional, administrative, and historical foundations of federal natural resources law and related public policy; applicable case law emphasizing water, range, mineral, wildlife, and recreation resources. Prereq: perm.

AgEc **471 Agricultural and Food Policy Issues** (3 cr). Course available only to students at off-campus locations. Principles of agricultural and food policy formulation; agricultural adjustment processes; agricultural price and income policies in relation to land use, water, and rural development policies; interrelationships among U.S. and foreign agriculture and trade policies. Prereq: Econ 201.

AgEc **481 Agricultural Markets in a Global Economy** (3 cr). Analysis of agricultural market competition and performance in a global economy; economics of global food and commodity markets and trade; economic principles applied to interaction of economic events in the world food economy. Prereq: Econ 352 or perm.

AgEc **493 Agricultural Production Economics** (3 cr). Economic theory related to agricultural production at the enterprise, firm, and industry levels. Prereq: AgEc 278 and Econ 352.

AgEc **499** (s) **Directed Study** (cr arr). Prereq: perm.

AgEc **500 Master's Research and Thesis** (cr arr).

AgEc **501** (s) **Seminar** (cr arr). Prereq: perm.

AgEc **502** (s) **Directed Study** (cr arr). Prereq: perm.

AgEc **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgEc **507 Research Methodology** (3 cr). Same as Econ, FCS, and Soc 507. Theoretical background of the scientific method applied to social science research; organization, procedures, reporting, and evaluation of research. Prereq: grad standing and perm.

AgEc **509 Mathematical Economics** (3 cr). See AgEc J409/J509.

AgEc **ID&WS510 Advanced Microeconomics** (3 cr). See Econ 510.

AgEc **WS520 Regional Economics** (3 cr). WSU Ag Ec 520. Construction of multisector economic models and their use in regional policy analysis.

AgEc **522 Macroeconomic Analysis** (3 cr). See Econ 522.

AgEc **524 Agricultural Trade and Development** (3 cr). Economics of international trade and development, with emphasis on policy and research issues that arise from interaction of economic events in the world food economy. Prereq: Econ 446 or perm.

AgEc **525 Econometrics** (3 cr). Same as Econ and Stat 525. Theory and practice of multiple regression methods; applications to the study of economic and other phenomena; use of computer regression programs. Prereq: 3 cr in statistics.

AgEc **528 Advanced Production Economics** (3 cr). Theory and application of production economics; production functions, technological change, operations research, linear programming. Prereq: AgEc 493 or equivalent and Stat 401 or AgEc 525.

AgEc **551 Natural Resource and Environmental Economics** (3 cr). Allocation of natural resources over time and among uses; environmental policy; welfare economics; project evaluation and benefit cost analysis; valuation of extramarket goods. Prereq: Econ 352 or perm.

AgEc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Agricultural Education

Lou E. Riesenberg, Head, Dept. of Agricultural and Extension Education (Agricultural and Extension Education Bldg., 1134 West 6th 83844-2040; phone 208/885-6358; e-mail lriesenb@uidaho.edu).

AgEd **180 Introduction to Agricultural Education** (1 cr). Overview of purposes and career opportunities in agricultural education; role of secondary agriculture instructor in secondary school systems. (Accelerated; first half of fall semester)

AgEd **181 Introduction to Extension Education** (1 cr). Overview of purpose and career opportunities available in extension education profession; role of cooperative extension faculty; basic principles and practices of Cooperative Extension System including related legislation. (Accelerated; second half of fall semester)

AgEd **200** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgEd **211 Agricultural Education Skills** (1 cr). Technical agriculture skills applicable to teaching agriculture. (Alt/yrs)

AgEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **351 Principles and Philosophy of Professional-Technical Education** (3 cr). Same as PTE 351. Overview and interpretation of history, aims, and purposes of public education and professional-technical education; issues and programs comprising professional-technical education in Idaho and in the nation.

AgEd **358 Supervising FFA and SAE Programs** (2 cr). Role of secondary agriculture instructors in supervising FFA and Supervised Agricultural Experience programs.

AgEd **359 Developing 4-H Youth Programs** (1 cr). Planning, development, and leadership principles of 4-H/youth program; role of 4-H/youth agent and volunteer leader.

AgEd **400** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **404** (s) **Special Topics** (cr arr). Prereq: perm.

AgEd **406** (s) **Study Abroad** (cr arr). Prereq: perm.

AgEd **WS440 Principles of Vocational Education** (2-3 cr). WSU Ag Ed 440. Course available only to students at off-campus locations.

AgEd **J448/J548 Principles and Practices of Extension Education** (3 cr). Philosophy and principles, social and economic significance of extension education in agriculture, home economics, and 4-H youth development; examination of behavioral science concepts in organization, development, and management of extension programs. Cr earned in AgEd 548 by completion of in-depth paper on some aspect of extension education. Prereq for AgEd 548: perm. (Alt/yrs)

AgEd **J450/J550 Developing Leaders** (2 cr). An action-oriented, participatory examination of aspects of "leadership." Designed to stir students' excitement about becoming leaders in school, home, and community; help students develop enthusiasm and interest in focusing on their vision for the future; individual and group activities allow students to identify their leadership philosophy, enhance their strengths, and improve on their weaknesses. Additional projects/assignments reqd for grad cr.

AgEd **451 Communicating in Agriculture** (2 cr). Principles and practices of disseminating knowledge and information related to agricultural sciences, environment, and natural resources to clients and the general public; communications concepts, technology, and presentation skills that will help agricultural and natural resource professionals communicate effectively within their chosen profession.

AgEd **452 Methods of Teaching Agriculture** (3 cr). Procedures of identifying and selecting instructional methods and materials, planning, and student evaluation criteria to effectively teach agriculture. Five lec and one 3-hr lab a wk for 7 wks.

AgEd **453 Program Planning in Secondary and Adult Agricultural Education** (1 or 3 cr). Planning, organizing, and implementing secondary and adult programs in agriculture. Includes only the adult section of the course when taken for 1 cr. Five lec a wk for 8 wks.

AgEd **454 Facilities Organization and Management** (2 cr). Applications of efficient planning, organizing, and teaching skills reqd in management of lab and shop facilities. Four lec and one 3-hr lab a wk for 8 wks.

AgEd **459 Cooperative Extension Practicum** (1-9 cr, max 9). Observation, participation, and supervised experiences in a selected extension office. Prereq: jr standing and perm.

AgEd **460 Practicum: Secondary School Teaching in Agriculture** (10 cr). Ten wks of practical experience student teaching in secondary agriculture program; in addition each student will be expected to complete one wk of early field-based experience at his or her student teaching center, to be completed the first wk of school after Jan. 1. Prereq: GPA of 2.50, admission to the Teacher Education Program, and perm of dept.

AgEd **461 Student Teaching Portfolio** (2 cr). Summary of the 10-week practicum experience; a notebook portfolio to include unit lesson plans, daily teaching plans, videotape example of teaching, report of early field experience, daily journal, summary of 10 positive and 10 challenging teaching experiences, supervisory assessments of teaching by cooperating instructor and university supervisor, and cooperating teacher's final evaluation.

AgEd **470 Proseminar in Agricultural Education** (1 cr, max 2). Professional issues in agricultural education. Fall semester includes additional 8-hour Saturday session for CPR and first aid training.

AgEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **500 Master's Research and Thesis** (cr arr).

AgEd **501** (s) **Seminar** (cr arr). Prereq: perm.

AgEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

AgEd **503** (s) **Workshop** (cr arr). Prereq: perm.

AgEd **504** (s) **Special Topics** (cr arr). Prereq: perm.

AgEd **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgEd **548 Principles and Practices of Extension Education** (3 cr). See AgEd J448/J548.

AgEd **550 Developing Leaders** (2 cr). See AgEd J450/J550.

AgEd **557 Problems in Teaching Agriculture** (1-3 cr, max 9). Methods and new developments. Prereq: perm.

AgEd **560 Beginning Teacher Induction in Agricultural Education** (1 cr, max 2). On-site clinical supervision, technical assistance, and leadership to beginning teachers of secondary agricultural education programs.

AgEd **562 Instructional Methods in Agricultural Education** (3 cr). Innovations and advanced principles in teaching methods and materials.

AgEd **583 Program Evaluation and Planning in Agricultural and Extension Education** (3 cr). Criteria and procedures for evaluation of programs in agricultural and extension education; selection and construction of evaluation devices; use of results in program planning and implementation.

AgEd **598** (s) **Internship** (cr arr). Prereq: perm.

AgEd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Agricultural Engineering

James A. DeShazer, Head, Dept. of Biological and Agricultural Engineering (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu).

NOTE: All 300-, 400-, and 500-level agricultural engineering courses require a working knowledge of computers including the use of mainframe and microcomputers, structured programming, electronic spreadsheets, and word processing.

AgE **142 Engineering for Living Systems** (2 cr). Same as BSyE 142. Introduction to engineering principles used to solve agricultural and biological systems problems, including use of computers. One lec and one 3-hr lab a wk; two half-day field trips.

AgE **143 Engineering Problem Solving** (2 cr). Same as BSyE 143. Engineering principles used to solve agricultural and biological systems problems, including computer programming; introduction to elements of design

AgE **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgE **242 Agricultural Engineering Analysis and Design** (2 cr). Methods of analyzing and solving engineering problems and intro to elements of design; use of computers in engineering problem solving. Prereq: AgE 143 or computer science elective in a programming language.

AgE **299** (s) **Directed Study** (cr arr). Prereq: perm.

AgE **WS341 Environmental Hydrology** (3 cr). WSU BSysE 351. Carries no credit after AgE 351.

AgE **ID351 Hydrology** (3 cr). Same as CE 321. WSU BSysE 353. Analysis of precipitation and runoff events; principles of climatology, evaporation, infiltration, and snowmelt. Prereq: one semester of calculus.

AgE **ID&WS352 Soil and Water Engineering** (3 cr). WSU BSysE 352. Plant-soil-water relationships, applied hydraulics, soil erosion principles and control, drainage, and legal aspects of water resources. Two lec and one 3-hr lab a wk. Prereq: Engr 335 and AgE 351.

AgE **ID&WS372 Agricultural Power and Machines** (3 cr). WSU BSysE 362. Performance, operation, and testing of agricultural power units and machinery; functional requirements, force analysis, power transmission, safety, and economics. Two lec and three hrs of lab a wk; one 1-day field trip.

AgE **398** (s) **Engineering Cooperative Internship** (cr arr). Supervised internship in professional engineering settings, integrating academic study with work experience; details of the co-op to be arranged with supervising professor before the start of the co-op; requires written report. Graded P/F. Cannot be used for technical elective. Prereq: perm.

AgE **404** (s) **Special Topics** (cr arr). Prereq: perm.

AgE **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgE **ID&WS-J441/ID&WS-J541 Instrumentation and Measurements for Biological Systems** (3 cr). AgE 441 same as BSyE 441. WSU BSysE 541. Sensing elements, signal conditioning, data output and control. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk. Prereq: AgE 462 or BSyE 462, or perm.

AgE **ID449 Design of Agricultural Structures** (3 cr). WSU BSysE 472. Design of timber, steel, and reinforced concrete members and connections for agricultural structures. Two lec and one 3-hr lab a wk. Prereq: Engr 350.

AgE **ID451 Engineering Hydrology** (3 cr). Same as CE 421. WSU BSysE 451. Hydrologic cycle as applied to engineering projects; hydrograph routing; design hydrographs; intro to hydrologic simulation. Prereq: AgE 351 and Engr 335.

AgE **ID&WS-J456/J556 Irrigation System Design** (3 cr). WSU BSysE 453. Crop water requirements, irrigation scheduling and water management, selection and design of irrigation systems, pump selection. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk; one 1-day field trip. Prereq: AgE 352.

AgE **WS457 Design for Watershed Management** (3 cr). WSU BSysE 457.

AgE **458 Open Channel Hydraulics** (3 cr). Same as CE 428. Hydraulics of uniform and varied flow in open channels with fixed and movable beds. Prereq: AgE 352 or CE 322.

AgE **ID&WS461 Agricultural Processing and Environment** (3 cr). WSU BSysE 461. Carries 2 credits after BSyE 361 or ME 345. Analysis and design of processing and environmental systems for the handling, processing, and storage of agricultural and biological materials. Two lec and one 3-hr lab a wk. Prereq: Engr 320 and 335.

AgE **ID&WS462 Electric Power and Controls for Biological Systems** (3 cr). WSU BSysE 380. Same as BSyE 462. Design, selection, and use of electrical equipment and electric power systems for application to biological systems; design and use of electrical, electronic, and other feedback control systems for use with biological systems. Two lec and one 3-hr lab a wk. Prereq: Engr 240; coreq: Math 310.

AgE **ID-J474/ID-J574 Fluid Power and Control Systems** (3 cr). WSU BSysE 474/574. Circuit components; circuit design and testing; sequential and feedback control applications. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk. Prereq for AgE 574: perm.

AgE **478 Agricultural Engineering Design I** (1 cr). Intro to design process, CAD/CAM facility, product liability, and project scheduling; formulation of a design problem. Prereq: senior standing in AgE, or perm.

AgE **479 Agricultural Engineering Design II** (2 cr). Individual or team design of an agricultural related problem; incl synthesis, analysis, construction, and testing; final report reqd. Two 3-hr labs a wk. Prereq: AgE 478.

AgE **491 Seminar** (1 cr). Same as BSyE 491. Professional aspects of the field, employment opportunities and preparation of occupational inventories. Graded P/F. Prereq: sr standing.

AgE **WS-J496/WS-J596 Conservation Engineering** (3 cr). WSU BSysE 496/596.

AgE **499** (s) **Directed Study** (cr arr). Prereq: perm.

AgE **500 Master's Research and Thesis** (cr arr).

AgE **501** (s) **Seminar** (cr arr). Graded P/F. Prereq: perm.

AgE **502** (s) **Directed Study** (cr arr). Prereq: perm.

AgE **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AgE **ID&WS541 Instrumentation and Measurements for Biological Systems** (3 cr). See AgE J441/J541.

AgE **ID551 Advanced Hydrology** (3 cr). WSU BSysE 550. Principles of the hydrologic cycle in mountainous areas, including precipitation, snowmelt, and systems simulation.

AgE **WS552 Advanced Theory of Irrigation Water Requirements** (3 cr). WSU BSysE 590. (Alt/yrs)

AgE **555 Natural Channel Flow** (3 cr). Same as CE 529. Hydraulics of nonuniform flow in irregular channels, unsteady flow, and flow routing.

AgE **556 Irrigation System Design** (3 cr). See AgE J456/J556.

AgE **ID558 Fluid Mechanics of Porous Materials** (3 cr). WSU BSysE 558. Statics and dynamics of multiflow systems in porous materials; properties of porous materials; steady and unsteady flow.

AgE **WS561 Advanced Agricultural Engineering Topics** (1-4 cr, max 6). WSU BSysE 551-552.

AgE **ID574 Fluid Power and Control Systems** (3 cr). See AgE J474/J574.

AgE **589 Water Resources Seminar** (1 cr). See Intr 589.

AgE **WS593 Drainage Engineering** (3 cr). WSU BSysE 593.

AgE **WS596 Conservation Engineering** (3 cr). See AgE J496/J596.

AgE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

AgE **600 Doctoral Research and Dissertation** (cr arr).

Agricultural Science and Technology

Lou E. Riesenberg, Head, Dept. of Agricultural and Extension Education (Agricultural and Extension Education Bldg., 1134 West 6th- 83844-2040; phone 208/885-6358; e-mail lriesenb@ uidaho.edu).

PREREQUISITE: Enrollment in courses in this subject field requires permission of the department.

Ag **200** (s) **Seminar** (cr arr). Prereq: perm.

Ag **206** (s) **Study Abroad** (cr arr). Prereq: perm.

Ag **299** (s) **Directed Study** (cr arr). Prereq: perm.

Ag **WS310 Accessing Information for Research** (1 cr). WSU GenEd 300. Course available only to students at off-campus locations.

Ag **398** (s) **Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm.

Ag **400** (s) **Seminar** (cr arr). Prereq: perm.

Ag **404** (s) **Special Topics** (cr arr). Prereq: perm.

Ag **406** (s) **Study Abroad** (cr arr). Prereq: perm.

Ag **499** (s) **Directed Study** (cr arr). Prereq: perm.

Agricultural Systems Management

James A. DeShazer, Head, Dept. of Biological and Agricultural Engineering (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu).

ASM **107 Beginning Welding** (2 cr). Principles of operation, use, and care of arc and acetylene welding equipment. One lec, one 2-hr lab, and two hrs of individual practice a wk. Enrollment limited to 12 per section.

ASM **112 Introduction to Agricultural Systems Management** (3 cr). Application of basic engineering principles to solving problems dealing with farm machinery, buildings, processing, irrigation, and energy use. Prereq: high school algebra.

ASM **115 Graphical Representation** (2 cr). Drafting procedures, lettering, orthographic projection, pictorial drawings, etching, graphs, and computer drafting. One lec and one 2-hr lab a wk.

ASM **200** (s) **Seminar** (cr arr). Prereq: perm.

ASM **202 Agricultural Shop Practices** (2 cr). Primarily for agricultural mechanization and agricultural education students. Operation, use, and care of shop tools and equipment. One lec and one 3-hr lab a wk.

ASM **WS203 Agricultural Structures** (3 cr). WSU AgTM 203.

ASM **204** (s) **Special Topics** (cr arr). Prereq: perm.

ASM **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

ASM **ID210 Small Engines** (2 cr). WSU AgTM 210. Principles of engine operation, tune-up, and maintenance; repair and overhaul of small engines. One lec, one 2-hr lab, and two hrs of individual practice a wk. Enrollment limited to 12 per section.

ASM **240 Computer Applications in Biological Systems** (3 cr). Application of computers in production agriculture; microcomputer principles and operation, disk operating systems; word processing; spreadsheets, database management and other application programs; introduction to one program language. Two lec and one 2-hr lab a wk. Prereq: three credits of college math or perm.

ASM **299** (s) **Directed Study** (cr arr). Prereq: perm.

ASM **304 Agricultural Fluid Power Systems** (1 cr). Fundamentals of hydraulic power and control as applied to agricultural machines and processing equipment; component function and sizing; schematic diagrams. One 3-hr lab a wk. Prereq: Math 160, Phys 100 or perm.

ASM **ID&WS305 Agricultural Machinery Systems** (3 cr). WSU AgTM 305. Application, management, adjustment, and care of farm equipment; machinery fabrication, and power transmission. Two lec and one 3-hr lab a wk.

ASM **ID306 Agricultural Structures and Environmental Systems** (3 cr). WSU AgTM 306. Planning farm buildings, construction materials, beam and column design, insulation and ventilation for environmental control. Two lec and one 3-hr lab a wk.

ASM **WS312 Engines and Tractors** (3 cr). WSU AgTM 312.

ASM **ID&WS315 Irrigation Systems and Water Management** (3 cr). WSU AgTM 315. Irrigation methods, irrigation management, water rights, conveyance and measurement, pumps, soil-water-plant relationships, and drainage. Two lec and one 3-hr lab a wk. Prereq: Soil 205, Math 160 or perm.

ASM **ID&WS331 Electric Power Systems for Agriculture** (3 cr). WSU AgTM 331. Basic circuits; wiring and the code; motors and controls; heating, lighting, and power. Two lec and one 3-hr lab a wk.

ASM **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

ASM **400** (s) **Seminar** (cr arr). Prereq: perm.

ASM **404** (s) **Special Topics** (cr arr). Prereq: perm.

ASM **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

ASM **ID409 Agricultural Tractors and Power Units** (4 cr). WSU AgTM 409. Selection, operation, adjustment, service, and testing; fuels and combustion; fuel, lubrication, cooling, and electrical systems; tractor power trains, hitching, traction, and safety. Three 1-hr lec and one 3-hr lab a wk.

ASM **412 Agricultural Safety and Health** (2 cr). Covers a broad variety of items related to agricultural safety and health: identification of safety and health hazards, maximizing capabilities of farmers and ranchers with disabilities, grain and livestock handling, chemical and gases handling, and fire safety; corrective measures to eliminate hazards and application of information learned to student's own situation. (Alt/yrs)

ASM **WS413 Human and Machinery Risk Management** (3 cr). WSU AgTM 413.

ASM **414 Analysis of Agricultural Systems I** (2 cr). Analysis of agricultural systems and equipment associated problems in food and agricultural industries; linear programming, simulation, critical path methods, and other system analysis techniques considering physical, social, and economic constraints; provides students with the knowledge and computer skills to better manage resources for the evolving agricultural industries. One 1-day field trip. Prereq: ASM 240 or equiv, Math 160, and sr standing.

ASM **424 Analysis of Agricultural Systems II** (2 cr). Management of agricultural systems through team solution of management problems posed by agribusiness managers, farmers, extension specialists, and other industry consultants; application of management principles to give students experience in solving realistic problems faced by agribusiness managers; critical evaluation of results by students, staff, and consultants. One 1-day field trip. Prereq: ASM 414.

ASM **ID&WS433 Agricultural Processing Systems** (3 cr). WSU AgTM and FSHN 433. Grain cleaning, mixing, and drying; materials handling, heat transfer, pumps, fans, refrigeration, and instrumentation. Two lec and one 3-hr lab a wk; one 1-day field trip. Prereq: Math 160.

ASM **WS434 Agricultural Processing Laboratory** (1 cr). WSU AgTM 434.

ASM **WS435 Instrumentation for Data Acquisition in Agriculture** (3 cr). WSU AgTM 435/535.

ASM **498** (s) **Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm.

ASM **499** (s) **Directed Study** (cr arr). Prereq: perm.

American Indian Studies

Rodney P. Frey, Acting Coordinator, American Indian Studies Program (116 Phinney Hall 83844-1110; phone 208/885-6268; rfrey@uidaho.edu; http://www.uidaho.edu/~rfrey/indianminor.htm).

AIST **401 Contemporary American Indian Issues** (3 cr). Identifies and addresses key cultural, economic, educational, legal, resource, and sovereignty issues facing Indian communities today; an essential component involves presentations by representatives from the Indian communities. Prereq: AmSt 201, Anth 329, Engl 484, Hist 431.

AIST **404** (s) **Special Topics** (cr arr). Prereq: perm.

AIST **495 Practicum** (cr arr). Supervised practicum in an Indian community setting, integrating academic study with work experience; requires formal plan of activities to be approved by the on site supervisor and assigned faculty member; a final written report will be evaluated by the assigned faculty member. Prereq: perm.

AIST **498** (s) **Internship** (cr arr). Supervised internship in an Indian community setting, integrating academic study with work experience; requires formal plan of activities to be approved by the on site supervisor and assigned faculty member; a final written report will be evaluated by the assigned faculty member. Prereq: perm.

AIST **499** (s) **Directed Study** (cr arr). Prereq: perm.

American Studies

Walter A. Hesford, Coordinator, American Studies Program (121 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6941); Sheila O'Brien and Mary H. DuPree, Co-coordinators.

AmSt **101 American Identities** (3 cr). Open to freshmen; open to other students with permission. May be used as core credit in J-3-d or J-3-e (pilot offering). Exploration of the ways identity is constructed in contemporary American culture through place, religion, race, gender/sexuality, and class; study of the topic through film, literature, history, theatre, music, the media, ethnography, economics, art, and architecture. Includes five evening meetings.

AmSt **201 Introduction to Ethnic Studies** (3 cr). Surveys major themes and topics in ethnic studies with a comparative emphasis on experiences of Native Americans, African Americans, Latinos/Hispanics, and Asian Americans; a multidisciplinary course that encourages participation facilitating student-to-student dialogue and allowing students to collaborate in creating a learning environment in which knowledge and experience is shares; assists students in becoming more aware of their own locations in the context of race and ethnic structures in the U.S.

AmSt **301 Interpreting America** (3 cr). May be used as core credit in J-3-d. Interdisciplinary approach to study of major aspects of American culture from its beginning to the present. Prereq: Engl 102; junior standing or perm.

AmSt **404** (s) **Special Topics** (cr arr). Prereq: perm.

AmSt **499** (s) **Directed Study** (cr arr). Prereq: perm.

Animal and Veterinary Science

Richard A. Battaglia, Head, Dept. of Animal and Veterinary Science (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; e-mail dwillis@uidaho.edu).

AVS **101 Animal and Veterinary Orientation** (2 cr). Career opportunities discussed to help students develop a strong sense of future direction.

AVS **ID&WS109 The Science of Animals that Serve Humanity** (3 cr). WSU A S 101. Role of animal agriculture in providing food, work, and pleasure for mankind; intro to animal genetics, physiology, endocrinology, nutrition, and other disciplines essential for an understanding of the contributions of animals in the expanding human population. Coreq for majors in the Animal/Vet Sc Dept: AVS 110.

AVS **110 Animal Science Laboratory** (1 cr). Lab exercises demonstrating the importance of domestic animals to human welfare. One 2-hr lab a wk. Coreq: AVS 109.

AVS **WS166 Horse Management Laboratory** (1 cr). WSU A S 166. Introductory laboratory designed to familiarize students with approved management practices for horse enterprises. Graded P/F.

AVS **ID172 Dairy Cattle Management Laboratory** (1 cr). WSU A S 172. Management practices associated with a dairy enterprise. Graded P/F.

AVS **ID&WS174 Beef Cow Calf Management Laboratory** (1 cr). WSU A S 174. Management practices associated with a beef cow calf enterprise for students without experience. Graded P/F.

AVS **ID176 Sheep Management Laboratory** (1 cr). WSU A S 176. Management practices associated with a farm flock sheep enterprise. Graded P/F.

AVS **WS178 Swine Management Laboratory** (1 cr). WSU A S 178. Management practices associated with a swine enterprise. Field trip and special clothing required. Graded P/F.

AVS **ID&WS205 Introduction to Animal Nutrition** (3 cr). WSU A S 213. May not be used for major cr by majors in animal science or range-livestock management. Functions, metabolism, and requirements of nutrients with applications to the diets of animals and birds.

AVS **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AVS **ID&WS218 Artificial Insemination and Pregnancy Detection** (2 cr). WSU A S 454. Anatomy and physiology of pregnant and nonpregnant reproductive systems; artificial insemination; male reproduction; pregnancy detection in domestic livestock. Two 2-hr lec-labs a wk. Enrollment limited to 20 students. Preregistration required; consult dept administrator. Prereq: AVS 222 (may be concurrent) and perm.

AVS **222 Animal Reproduction and Breeding** (4 cr). Provides fundamental information about reproduction, lactation, and breeding of domestic animals; topics include functional anatomy, basic physiology, and endocrinology relating to reproduction and lactation; animal breeding involves the mathematical and conceptual framework of genetic evaluation.

AVS **ID&WS263 Live Animal and Carcass Evaluation** (3 cr). WSU A S 260. Evaluation and selection of cattle, sheep, and swine for herd replacement; evaluation of market animals; carcass evaluation and grading, slaughter procedures, and factors that affect quality and quantity of meat; visual and objective appraisals. One lec and two 3-hr lab a wk; four 1-day and four 1/2-day field trips or equiv time.

AVS **264 Consumer Meats** (3 cr). Same as FST 264. Duplicate cr not allowed in AVS/FST 363 and 264. Meat as a food; meat inspection, pricing, selection, processing, storage, and cookery. Special clothing and equipment reqd. Two lec and one 3-hr lab a wk.

AVS **265 Abattoir Skills** (1 cr). Practical experience in meat animal slaughter. Special clothing and equipment reqd. Prereq: AVS 363 or 264.

AVS **299** (s) **Directed Study** (1-6 cr). Graded P/F. Prereq: perm of dept.

AVS **304 Advanced Animal Evaluation** (3 cr). Emphasis on use of records in selection and use of carcass value in pricing live market animals; factors that affect the economic value of meat animals. Students participate in live animal-carcass evaluation contests. One lec and two 3-hr labs a wk; four 1-day and four 1/2-day field trips in addition to contests or equiv time. Prereq: AVS 263.

AVS **ID&WS305 Animal Nutrition** (4 cr). WSU A S 314. Introduction of the concepts and principles of animal nutrition; fundamentals of nutrients and their digestion and metabolism; various biochemical pathways and processes for nutrient utilization; nutrition fundamentals for a range of monogastric and ruminant animals. Prereq: Biol 201 and Chem 111.

AVS **ID&WS306 Feeds and Ration Formulation** (4 cr). WSU A S 313. Application of principles of nutrition to ration formulation for poultry and livestock; evaluating feedstuffs for use in ration formulation. Three lec and one 2-hr lab a wk. Prereq: AVS 205 or 305.

AVS **WS315 Introduction to Animal Growth and Development** (3 cr). WSU A S 345.

AVS **WS316 Introduction to Skeletal Muscle Physiology** (3 cr). WSU A S 346.

AVS **WS330 Genetics of Farm Animals** (3 cr). Same as Gene 320. WSU A S 330. Genetic principles applied to breeding of farm animals. Prereq: Gene 314, Stat 251, and AVS 222.

AVS **363 Animal Products for Human Consumption** (3 cr). Same as FST 363. The meat, dairy, and egg industries, including product produced, processed, safety (HACCP), nutrition, distribution, quality, quantity, palatability, health, cooking, home storage, and consumer concerns. Special clothing and equipment required. Three lec and one 2-hr lab a wk. Prereq: Biol 201.

AVS **WS366 Equine Science and Management** (3 cr). WSU A S 366. Development, functional use, behavior, and management of the horse. Field trip reqd. Prereq: AVS 166 or perm.

AVS **371 Anatomy and Physiology** (4 cr). Structure and function of tissues and organ systems of domestic and wild animals. Three lec and one 2-hr lab a wk.

AVS **398** (s) **Internship** (cr arr). Cooperative programs with producers, allied industry and food processing industries within the state. Graded P/F. Prereq: perm.

AVS **403** (s) **Workshop** (cr arr). Normally offered in nutrition, breeding, products, and management. Graded P/F. Prereq: perm.

AVS **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AVS **J407/J507 Selected Topics in Dairy Cattle Nutrition** (3 cr). Current literature topics in dairy cattle nutrition. Prereq: AVS 306.

AVS **J411/J511 Microbiology and Physiology of Ruminant Nutrition** (3 cr). Physiology and microbiology aspects of ruminant digestion and their influence on the metabolism of extraruminal tissues; interpretation of nutritive requirements in terms of rumen microbiology activities; evaluation of research techniques. Additional projects/assignments reqd for grad cr. Prereq: perm. (Alt/yrs)

AVS **ID&WS413 Physiology of Lactation** (3 cr). WSU A S 452. Anatomy, physiology, and endocrine control of mammary development and milk secretory process. Prereq: Biol 202 (AVS 371 recommended) or perm. (Alt/yrs)

AVS **J430/J530 Advanced Topics in Embryo Physiology** (3 cr). Analysis of biochemical, endocrine, and anatomical events of embryonic development with emphasis on lab and domestic animals; critical analysis of current scientific literature; lab techniques in developmental biology. Outside reading, class presentation, and term paper reqd; additional projects/assignments reqd for grad cr. Two lec and one lab a wk. (Alt/yrs)

AVS **ID&WS431 Topics in Meat Science and Muscle Physiology** (1 cr). WSU A S 340. Readings, discussions, seminars, and tours related to most current disposition of meat science (processing, safety, consumers) and muscle biology (research and teaching).

AVS **450 Issues in Animal Agriculture** (1 cr). The capstone experience for seniors in AVS; students will present information on selected topics and propose solution to current problems; emphasis on problem solving using integration of information across disciplines. Prereq: senior standing.

AVS **ID&WS-J451/ID&WS-J551 Endocrine Physiology** (3 cr). WSU A S 451/551. Same as Zool J417/J517. Structure and physiology of glands of internal secretion and their hormonal effects on processes of growth, development, metabolism, and production of vertebrates; minor emphasis on invertebrates. Cr earned in AVS 551 by completion of term paper. Prereq: Biol 202 and MMBB 380.

AVS **ID&WS452 Physiology of Reproduction** (4 cr). WSU A S 350. Physiology of reproduction; growth, structure, development, endocrinology, and control of reproductive function with emphasis on farm animals. Three lec and one 2-hr lab a wk.

AVS **J463/J563 Advances in Meat Science** (3 cr). Development of muscle and its conversion to meat; factors influencing muscle deposition, structure, chemistry, composition, palatability, nutritional value, safety, and quality. Additional projects/assignments reqd for grad cr.

AVS **WS466 Horse Production** (3 cr). WSU A S 466. Principles of breeding, feeding, and management of horses. Field trip required. Enrollment limited to 10. Prereq: AVS 205, 222, and perm.

AVS **471 Animal Disease Management** (3 cr). Principles of immunity and disease resistance, transmission, and prevention; clinical signs, pathogenesis, and control of major diseases of economic importance in domestic animals Prereq: junior standing.

AVS **ID&WS472 Dairy Cattle Management** (3 cr). WSU A S 472. Establishing a dairy farm, housing and managing large dairy herds, selection of breeding cattle, and marketing quality milk. One 4-day field trip. Prereq: AVS 205 and 222 or equiv.

AVS **ID&WS474 Beef Cattle Science** (3 cr). WSU A S 474. Breeding, feeding, and management; commercial and purebred enterprises; management of beef cattle on ranges, pasture, and in the feedlot. One 1-day field trip. Prereq: AVS 205 and 222 or equiv.

AVS **WS475 Advanced Dairy Management** (2 cr). WSU A S 473. Application of concepts of dairy cattle management to practical situations. One lec and 1-2 hrs of lab a wk. Prereq: AVS 472.

AVS **ID476 Sheep Science** (3 cr). WSU A S 476. Application of principles of genetics, reproduction, nutrition, health, and marketing to the management of commercial and purebred sheep; new developments related to sheep industry; production, evaluation, and use of wool. Two lec and one 2-hr lab a wk; one 1-day field trip or equiv time. Prereq: AVS 205 and 222 or equiv.

AVS **WS478 Swine Production** (3 cr). WSU A S 478. Principles of breeding, feeding, management, and marketing of swine. Two 2-hr lec-labs a wk; two 1-day field trips or equivalent time. Prereq: AVS 205 and 222 or equiv.

AVS **ID&WS485 Animal Welfare** (3 cr). WSU A S 285. Ethical considerations and welfare of animals used as companions, for food, and in scientific research. Prereq: Biol 201.

AVS **WS488 Perspectives in Biotechnology** (3 cr). WSU A S 488. Theory and application of biotechnology in agriculture, industry, and medicine; methodological, environmental, social, and economic concerns.

AVS **499** (s) **Directed Study** (1-6 cr, max arr). Prereq: perm of dept.

AVS **500 Master's Research and Thesis** (cr arr). Graded P/F.

AVS **501** (s) **Seminar** (cr arr). Prereq: perm.

AVS **502** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

AVS **503** (s) **Workshop** (cr arr). Prereq: perm.

AVS **504** (s) **Special Topics** (cr arr). Prereq: perm.

AVS **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

AVS **507 Selected Topics in Dairy Cattle Nutrition** (3 cr). See AVS J407/J507.

AVS **WS510 Digestion and Nutrient Utilization in Animals** (2 cr). WSU A S 510.

AVS **511 Microbiology and Physiology of Ruminant Nutrition** (3 cr). See AVS J411/J511.

AVS **WS512 Advanced Nutrient Metabolism** (2 cr). WSU A S 507. (Alt/yrs)

AVS **513 Protein and Energy Nutrition** (3 cr). Current concepts in protein and energy metabolism and function relating to nutrients reqd for maintenance, growth, and development of animals. Prereq: AVS 305, MMBB 380 or equiv.

AVS **514 Physiology of Nonruminant Nutrition** (3 cr). Physiology of digestion, absorption, and metabolism of nutrients in monogastric animals and birds; biological evaluation of nutrients and nutritional interrelationships. Prereq: perm. (Alt/yrs)

AVS **WS516 Mineral and Vitamin Metabolism** (4 cr). WSU A S 513.

AVS **ID&WS520 Seminar in Animal Physiology** (1 cr, max arr). WSU A S 540. Current topics in animal physiology.

AVS **ID&WS526 Advanced Reproduction** (4 cr). WSU A S 550. (Alt/yrs)

AVS **530 Advanced Topics in Embryo Physiology** (3 cr). See AVS J430/J530.

AVS **WS538 Neuroendocrinology** (3 cr). WSU V Ph 538.

AVS **ID&WS551 Endocrine Physiology** (3 cr). See AVS J451/J551.

AVS **ID&WS560 Domestic Animal Growth and Development** (3 cr). WSU A S 560. Development, differentiation, growth, and endocrine regulation of major organ systems in domestic animals. Prereq: AVS 513, MMBB 380, and perm.

AVS **563 Advances in Meat Science** (3 cr). See AVS J463/J563.

AVS **WS595 Cytokines and Their Role in Reproduction** (2 cr). WSU A S 598.

AVS **WS596 Advanced Topics in Animal Science** (1-2 cr, max arr). WSU A S 598.

AVS **597** (s) **Practicum** (cr arr). Prereq: perm.

AVS **598** (s) **Internship** (cr arr). Prereq: perm.

AVS **600 Doctoral Research and Dissertation** (cr arr). Graded P/F.

Anthropology

Donald E. Tyler, Chair, Dept. of Sociology/Anthropology/Justice Studies (101 Phinney Hall 83844-1110; phone 208/885-6751).

PREREQUISITE: Ordinarily three credits in lower-division courses in anthropology are required for registration in upper-division courses in this field; other exceptions by permission.

Anth **100 Introduction to Anthropology** (3 cr). May be used as core credit in J-3-e. Basic theories, methods, and findings of human paleontology, prehistory, and culture.

Anth **200** (s) **Seminar** (cr arr). Prereq: perm.

Anth **203** (s) **Workshop** (cr arr). Prereq: perm.

Anth **204** (s) **Special Topics** (cr arr). Prereq: perm.

Anth **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Anth **220 Peoples of the World** (3 cr). Societies of Eurasia, Africa, Americas, Australia, and islands of the Pacific.

Anth **230 World Prehistory** (3 cr). Prehistoric cultures of Old and New Worlds; techniques of excavation; methods of archaeological analysis.

Anth **231 Introduction to Archaeology** (3 cr). Archaeological techniques for interpreting past lifeways from material remains; includes both prehistoric and historical archaeology.

Anth **251 Introduction to Physical Anthropology** (3 cr). Evidence for primate and human evolution; processes of racial diversification; techniques of physical anthropology; human population biology.

Anth **261 Language and Culture** (3 cr). Language as an aspect of culture; the relation of habitual thought and behavior to language.

Anth **299** (s) **Directed Study** (cr arr). Prereq: perm.

Anth **322 Racial and Ethnic Relations** (3 cr). See Soc 322.

Anth **C323 Introduction to Museology** (3 cr). Theory and practice of science, history, and art museums. One 1-day and two 1/2-day field trips.

Anth **327 Belief Systems** (3 cr). Same as RelS 327. Method and theory of comparative anthropological study of religion.

Anth **329 North American Indians** (3 cr). Origins, physical types, languages, and cultures of North American Indians.

Anth **400** (s) **Seminar** (cr arr). Prereq: perm.

Anth **403** (s) **Workshop** (cr arr). Prereq: perm.

Anth **404** (s) **Special Topics** (cr arr). Prereq: perm.

Anth **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Anth **409 Anthropological Field Methods** (1-8 cr, max 8). Field training in archaeology and/or social anthropology.

Anth **J410/J510 Research Methods in Anthropology** (3 cr). Designing, conducting, and reporting research in anthropology. Prereq: Stat 251.

Anth **ID&WS-J411/ID&WS-J511 Human Evolution** (3 cr). WSU Anth 465/565. Human origins in light of the fossil record and evolutionary theory. Additional projects/assignments reqd for grad cr. Prereq: Anth 100 or perm.

Anth **ID&WS-J412/ID&WS-J512 Human Races** (3 cr). WSU Anth 463/563. Human population biology, dynamics of evolution, human ecology, and their relationship to problem of human racial variation. Additional projects/assignments reqd for grad cr. Prereq: Anth 100 or perm.

Anth **J414/J514 Development of Social Theory** (3 cr). See Soc J414/J514.

Anth **C419 Museum Administration** (3 cr). Administration of the total museum program. Prereq: Anth C323.

Anth **420 Anthropological History and Theory** (3 cr, max 9). Historical development of anthropology along with theoretical debates as presented in the anthropological literature. Additional projects/assignments reqd for grad cr. Prereq: upper-division standing.

Anth **421 The World of Polly Bemis** (1 cr). The life of Idaho's most famous Chinese woman, Polly Bemis, including a visit to her restored home on the Salmon River, her grave, and other sites associated with her life and times. Additional fee for off-campus class. One 3-day field trip, including lectures.

Anth **ID-J422/ID-J522 Plateau Indians** (3 cr). WSU Anth 428/528. An overview of historic and contemporary Indian cultures of the Plateau; oral traditions, ceremonial life, social organization, and subsistence activities; history of contact with Euro-American society. Additional projects/assignments reqd for grad cr.

Anth **423 Chinese Mining on the Lower Salmon River** (1 cr). Exploration by river of Chinese miners' rock dwellings, hydraulic workings, man-made reservoirs, and Chinese artifacts on otherwise-inaccessible portions of the Lower Salmon River. Additional fee for off-campus class. One 3-day field, including lectures and cultural activities.

Anth **426 Anthropology of China** (3 cr). Overview of physical anthropology, archaeology, and linguistics of China with special emphasis on social anthropology of both pre- and post-liberation China.

Anth **J428/J528 Social and Political Organization** (3 cr). Bases of social and political organization; kin based units; non-kin units; political units through primitive states. Additional projects/assignments reqd for grad cr. Prereq: upper-div standing.

Anth **J430/J530 Introduction to Archaeological Method and Theory** (3 cr). Archaeological theory in anthropological perspective; current trends in method and theory of American archaeology. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 or perm.

Anth **J431/ID-J531 Historical Archaeology** (3 cr). WSU Anth 545. Excavation and analysis of historic archaeological sites. Additional projects/assignments reqd for grad cr. Three 1-day field trips. Prereq: Anth 100.

Anth **J436/J536 North American Prehistory** (3 cr). Theories, methods, and findings of prehistoric North American archaeology. Additional projects/assignments reqd for grad cr. Prereq: Anth 231.

Anth **J438/J538 Archaeological Conservation** (3 cr). Methods of material and data recovery from archaeological contexts; review of chemical and physical characteristics of archaeological materials; techniques appropriate for preservation of materials and information during field work and laboratory analysis. Additional projects/assignments reqd for grad cr. Prereq: Anth 231.

Anth **J439/J539 Spatial Analysis in Archaeology** (3 cr). Principles and technologies for intra and inter site analyses; use of cumulative regional databases; spatial autocorrellation; introduction to the use of remote sensing; geophysical sampling; geographical information systems, and photogrammetry in archaeology. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 and Stat 251.

Anth **441 Introduction to the Study of Language** (3 cr). See Engl 441.

Anth **J443/J543 Plateau Prehistory** (3 cr). Prehistoric cultures, chronologies, and interrelationships within the interior Northwest. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 or perm.

Anth **J449/J549 Lithic Technology** (3 cr). Manufacture and analysis of stone implements, theory of rock fracture, nonhuman productions of pseudo-artifacts. Additional projects/assignments reqd for grad cr. Prereq: Anth 231 or perm.

Anth **WS-J450/WS-J550 Descriptive Linguistics** (3 cr). WSU Anth 450/550.

Anth **ID&WS-J451/ID&WS-J551 Forensic Anthropology** (3 cr). WSU Anth 466/566. Observations and measurements of the human skeleton; variations based on age, sex, and race, and pathologies; identification of human skeletal material and other mammals. Additional projects/assignments reqd for grad cr. Three lec/lab sessions a wk. Prereq: Anth 251.

Anth **J462/J562 Human Issues in International Development** (3 cr). Interdisciplinary analysis of complex interaction between tradition and modernity in Third World society, and its attendant human predicament. Additional projects/assignments reqd for grad cr. (Alt/yrs)

Anth **496** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Anth **497** (s) **Practicum** (cr arr).

Anth **498** (s) **Internship** (cr arr). Prereq: perm.

Anth **499** (s) **Directed Study** (cr arr). Prereq: perm.

Anth **500 Master's Research and Thesis** (cr arr).

Anth **501** (s) **Seminar** (cr arr). Prereq: perm.

Anth **502** (s) **Directed Study** (cr arr). Prereq: perm.

Anth **503** (s) **Workshop** (cr arr). Prereq: perm.

Anth **504** (s) **Special Topics** (cr arr). Prereq: perm.

Anth **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Anth **509 Anthropological Field Methods** (1-8 cr, max 8). Individual field work in approved areas. Prereq: perm.

Anth **510 Research Methods in Anthropology** (3 cr). See Anth J410/J510.

Anth **ID&WS511 Human Evolution** (3 cr). See Anth J411/J511.

Anth **ID&WS512 Human Races** (3 cr). See Anth J412/J512.

Anth **514 Development of Social Theory** (3 cr). See Soc J414/J514.

Anth **521 Contemporary Issues in Anthropological Theory** (3 cr). In-depth exploration of contemporary theoretical issues within anthropology. Prereq: Anth 420 or equiv, or perm.

Anth **ID522 Plateau Indians** (3 cr). See Anth J422/J522.

Anth **528 Social and Political Organization** (3 cr). See Anth J428/J528.

Anth **530 Introduction to Archaeological Method and Theory** (3 cr). See Anth J430/J530.

Anth **ID531 Historical Archaeology** (3 cr). See Anth J431/J531.

Anth **WS535 Cultural Resource Management** (3 cr). WSU Anth 535.

Anth **536 North American Prehistory** (3 cr). See Anth J436/J536.

Anth **538 Archaeological Conservation** (3 cr). See Anth J438/J538.

Anth **539 Spatial Analysis in Archaeology** (3 cr). See Anth J439/J539.

Anth **543 Plateau Prehistory** (3 cr). See Anth J443/J543.

Anth **549 Lithic Technology** (3 cr). See Anth J449/J549.

Anth **WS550 Descriptive Linguistics** (3 cr). See Anth WS-J450/WS-J550.

Anth **ID&WS551 Forensic Anthropology** (3 cr). See Anth J451/J551.

Anth **562 Human Issues in International Development** (3 cr). See Anth J462/J562.

Anth **WS573 Zooarchaeology** (4 cr). WSU Anth 573.

Anth **597** (s) **Practicum** (cr arr). Prereq: perm.

Anth **598** (s) **Internship** (cr arr). Prereq: perm.

Anth **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Architecture

Robert M. Baron, Chair, Dept. of Architecture (207 Art and Arch. South 83844-2451; phone 208/885-6781; e-mail arch@uidaho.edu).

Note: On registering for a studio course offered in this department, the student agrees that the department may retain work completed by the student. The department will make retained work available to the student for photographing.

Arch **151 Introduction to the Environmental Design Disciplines** (2 cr). Introduction to the role of architecture and interior architecture in the creation of the built environment using an integrated approach; the power of design to nourish the human spirit, support functional needs, and contribute to sustainability of the environment. Attendance at evening lectures by guest speakers reqd.

Arch **156 Graphic Communication** (2 cr). Intro to the process of graphic communication; studio projects to explore graphics through projects, lec, and readings. Two 2-hr studios a wk and assigned work.

Arch **200** (s) **Seminar** (cr arr). Prereq: perm.

Arch **203** (s) **Workshop** (cr arr). Prereq: perm.

Arch **204** (s) **Special Topics** (cr arr). Prereq: perm.

Arch **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Arch **251 Principles of Architecture** (2 cr). Slide lec course introducing architecture and interior architecture; methods of critical analysis; history of modern movement to contemporary design.

Arch **255 Advanced Architectural Graphics** (3 cr). Two- and three-dimensional drawing applying various delineation techniques; preliminary presentation techniques and use of color in graphics. Two 2-hr studios a wk and assigned work. Prereq: Arch 156 or perm.

Arch **256 Basic Architectural Design** (3 cr). Same as IA 256. Intro to design process, space and space relationships, character of design, and form; development of sketch presentation techniques. Two 3-hr studios a wk and assigned work.

Arch **266 Materials and Methods** (3 cr). Materials characteristics from manufacture to construction; production information and resource literature investigation.

Arch **284 Computer-Aided Design** (2 cr). Principles of computer-aided design concepts and methods in architecture and interior architecture.

Arch **299** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **353-354 Architectural Design I** (5 cr). Expansion of student vocabulary of architectural forms and their means of generation; a broad scope and nonrestrictive (though directed) class covering aspects of form generation from human to climatic conservations, influences of history, research, and materials of construction related to architectural design; encouragement of student experimentation and creativity. Three 3-hr studios a wk and assigned work; field trips will be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 256, 266.

Arch **365-366 Building Technology I** (3 cr). Arch 365: basic structural design including elementary statics and principles and technology of wood structural design. Arch 366: principles and technology of structural reinforced concrete building design problems by integrating solutions with Architectural Design studio. Prereq: Phys 111, Math 143, Arch 365 for 366, or perm.

Arch **374 Computer Applications in Architecture** (3 cr). Application of current computer technologies in architecture and interior architecture; emphasis on integration of multi-dimensional modeling and visualization methods into the design process. Prereq: Arch 284 or perm.

Arch **385 History of Architecture I: Pre-Modern** (3 cr). Development of western tradition in architecture and urbanism, beginning with first traces of prehistoric building and settlements in northern Europe and Near East and ending with culmination of Baroque development in late 17th century.

Arch **386 History of Architecture II: Modern** (3 cr). Modern movement in architecture and urbanism from late 18th century in France and Britain; cultural, technological, and territorial issues and conditions that led to development of modern architecture in the 20th century.

Arch **400** (s) **Seminar** (cr arr). Prereq: perm.

Arch **401 Senior Design Seminar** (2 cr). Specialized research and program writing in preparation for Arch 456.

Arch **403** (s) **Workshop** (cr arr). Prereq: perm.

Arch **404** (s) **Special Topics** (cr arr). Prereq: perm.

Arch **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Arch **ID412 Environment and Aging** (3 cr). WSU Aging 412. Exploration of the relationship between the processes of aging and the physical environment within an environment and behavior perspective.

Arch **453-454 Architectural Design II** (5 cr). Study directed at specifics of building design synthesizing related course work into a comprehensive problem solution from multiple-building planning to working drawings on a single building. Three 3-hr studios a wk and assigned work; field trips will be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 353-354.

Arch **455-456 Architectural Design III** (5 cr). Expansion to the urban scale of the student's design awareness and ability; to acquaint the student with the multiplicity of considerations involved as project scope increases beyond a single site; to encourage creative and broad-scope thought and action on the future configuration of our cities. In Arch 456, the student undertakes a self-directed architectural design study with faculty consultation. Three 3-hr studios a wk and assigned work; field trips will be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 453-454; prereq for Arch 456: Arch 401.

Arch **463-464 Environmental Control Systems** (4 cr). Principles and design of solar and mechanical heating and cooling systems, natural and artificial lighting, water and waste systems, and acoustics. Three 1-hr lec and one 2-hr lab a wk.

Arch **465-466 Building Technology II** (3 cr). Arch 465: structural design with steel in buildings; principles and technology of steel design applied to practical building problems by integrating solutions with Architectural Design studio. Arch 466: structural design of buildings with seismic analysis; principles and technology of masonry design. Prereq: ForP 365, Arch 366, or perm.

Arch **J468/J568 Technical Integration of Buildings** (2 cr). Integration of structural, environmental, and spatial systems in buildings through case study methodology. Additional projects/assignments reqd for grad cr. Prereq: Arch 463, 464, 465, and 466, or perm.

Arch **470 Natural Lighting** (2 cr). Methods for design of daylighting systems for building.

Arch **471 Building Vital Signs** (2 cr). Methods for assessing performance of actual and planned buildings.

Arch **475-476 Professional Practice I-II** (3 cr). The architect's duties and responsibilities in practice (construction documents and contracts), project supervision, office administration, and comprehensive services; specification writing, unit costs, and building estimation.

Arch **482 Introduction to Historic Preservation: Theories and Issues** (2 cr). Same as IA 482. Cross-disciplinary examination of historic preservation issues, both past and present; case study exploration of design and planning strategies for preservation and adaptive use of historic buildings and community context. Field trips required.

Arch **483 Urban Theory and Issues** (3 cr). History and theory of city planning and problems associated with urban growth.

Arch **484 Architectural Theory** (2 cr). Seminar considering architectural theory and critical thought through history with emphasis on modern era; examines relation between architectural theory and architectural works. Prereq: Arch 385, 386, fourth year standing.

Arch **486 American Architecture** (2 cr). Selected areas of critical interest in development of American architecture; may include historical styles, key American architects, urban and public issues, and particular building types.

Arch **WS490 Seminar in Architectural Design** (1-4 cr, max 4). WSU Arch 490.

Arch **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Arch **499** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **500 Master's Research and Thesis** (cr arr).

Arch **501** (s) **Seminar** (cr arr). Prereq: perm.

Arch **502** (s) **Directed Study** (cr arr). Prereq: perm.

Arch **503** (s) **Workshop** (cr arr). Prereq: perm.

Arch **504** (s) **Special Topics** (cr arr). Prereq: perm.

Arch **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Arch **510 Graduate Seminar** (2 cr). Specialized research and program writing in preparation for Arch 556.

Arch **555 Graduate Architectural Design** (5 cr). Complex architectural design and/or urban and community planning; opportunities to explore in depth principles presented in other planning, technology, and theory courses. Three 3-hr studios a wk and assigned work; field trips reqd at student expense; some class jury sessions will meet outside of scheduled hours.

Arch **556 Graduate Project** (5 cr). Faculty directed comprehensive architectural design project. Three 3-hr studios a wk and assigned work; field trips may be reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq: Arch 510, 555.

Arch **568 Technical Integration of Buildings** (2 cr). See Arch J468/J568.

Arch **597** (s) **Practicum** (cr arr). Prereq: perm.

Arch **598** (s) **Internship** (3 cr, max 6). Work in an architectural office under the supervision of a licensed architect. Prereq: perm.

Arch **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

COURSES

Art

Jill Dacey, Chair, Dept. of Art (203 Art and Arch. South 83844-2471; phone 208/885-6851).

Note: On registering for a studio course offered in this department, the student agrees that the department may retain work completed by the student.

Art **100 Visual Art** (3 cr). May be used as core credit in J-3-d. Introductory historical overview of important visual arts to promote an understanding and appreciation of artistic output with primary emphasis on painting, sculpture, and architecture. Two lec and one 1-1/2-hr quiz/recitation a wk.

Art **111-112 Drawing I-II** (3 cr). Freehand drawing; emphasis on expressive use of materials. One lec and 4 hrs of studio a wk. Prereq for Art 112: Art 111.

Art **121-122 Visual Communication and the Design Process** (3 cr). Intro to visual communication and design process; studio problems to familiarize students with basic design process, elements of design and individual design criteria as related to traditional and experimental concepts of visual communication; studio problems explore basic design through the two- and three-dimensional production, experiences, readings, and written analysis. One lec and two 2-hr studios a wk and assigned work; attendance at outside events (lecs, symposiums, Prichard and Univ Gallery openings).

Art **200** (s) **Seminar** (cr arr). Prereq: perm.

Art **H201 Art Studio** (3 cr). Emphasis on free hand drawing using a wide range of drawing and rendering tech; intro to artistic media and concepts; guest lec and slide presentations by members of art faculty and art grad program; in-class discussion of area gallery shows and college guest lec series. Two 3-hr studios a wk and assigned work. Prereq: perm of director of University Honors Program.

Art **203** (s) **Workshop** (cr arr). Prereq: perm.

Art **204** (s) **Special Topics** (cr arr). Prereq: perm.

Art **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Art **207 Survey of Western Art: Ancient to Medieval** (3 cr). Introduction to the arts and architecture of Mesopotamia, Egypt, the Aegean, Greece, Rome, and Medieval Europe to the year 1400; periods evaluated according to comparative stylistics, with additional emphasis on causality of change and innovation; emphasis on architecture, sculpture, and forms of painting. May have evening exams.

Art **208 Survey of Western Art: Renaissance to Modern** (3 cr). Introduction to the arts of the Italian Renaissance, the Renaissance in the North, the Baroque Period, Neo-Classicism and Romanticism, 19th century experiments, and modern to contemporary periods; primary emphasis on two-dimensional arts, with some focus on architecture and sculpture; periods evaluated according to comparative stylistics, with additional emphasis on causality of change and innovation. May have evening exams.

Art **211-212 Drawing III-IV** (3 cr). Art 211: life drawing, work with various media to develop an understanding of the human figure. Art 212: figure drawing from the model, nature, and abstract form; emphasis on individual development. Two 3-hr studios a wk and assigned work. Prereq for Art 211: Art 111-112 or perm. Prereq for Art 212: Art 211 or perm.

Art **214-215 Textile Design I-II** (3 cr). Art 214: Intro to basic technical and aesthetic concepts in textile design, including dye and color theory, resist and direct application techniques; intro to design industry. Art 215: intro to basic technical and aesthetic concepts in woven design, including woven structures, color theory, and drafting. Two 3-hr studios a wk and assigned work.

Art **221-222 Graphic Design I-II** (3 cr). Art 221: Creative problem solving with emphasis on 2-D solutions to conceptual problems; translation of concept into form using word, image, and layout; intro to history of graphic design and typography. Art 222: Continuation of translation of concept into form with emphasis on typography, letterforms, and typographic syntax, type specification, and preparation of art for print media. Prereq for Art 221: Art 111-112, 121-122 or perm. Prereq for Art 222: Art 221 or perm.

Art **225 Communication Graphics** (2 cr). Intro to graphic communication using elementary techniques emphasizing typography and advertising layout. Two 3-hr studios a wk and assignments. Not for graphics majors. Class limited to 35.

Art **231 Painting I** (3 cr). Intro to basic fundamentals of painting; investigating color and techniques. Two 3-hr studios a wk and assigned work. Prereq: Art 111 or perm.

Art **241 Sculpture I** (3 cr). Introductory studio environment with emphasis on basic design principles and techniques, tool safety, material exploration, and the development of unique personal expressions in three dimensions. Two 3-hr studios a wk and assigned work. Prereq: Art 100, 111, 112, 121, 122 or perm.

Art **251 Printmaking I** (3 cr). Intro to basic printmaking techniques, relief, intaglio, and serigraphy; emphasis on sensitivity to materials and individual development.

Art **261 Ceramics I** (3 cr). Intro to clay-forming techniques, wheel-thrown and hand-built forming methods, ceramic design concepts, development and articulation of individual design criteria, glaze experimentation; fundamental types of ceramic ware; kiln and studio procedures. Two 3-hr studios a wk and assigned work.

Art **271-272 Interface Design I-II** (3 cr). Art 271: Intro to technical and aesthetic concepts of interface design, including interface design for the Web, preparation of basic assets (graphics, video, and sound) for Internet delivery. Art 272: Intro to basic interactive multi-media programs, intermediate asset preparation, and delivery systems (Internet, CD, kiosk, etc.). Six hrs of lab a wk and assigned work. Prereq for Art 271: Art 121, 122, or perm. Prereq for Art 272: Art 271.

Art **281 Watercolor I** (3 cr). Intro to techniques of watercolor painting by individual instruction and group criticism. Two 3-hr studios a wk and assigned work. Prereq: Art 111 or perm.

Art **299** (s) **Directed Study** (cr arr). Prereq: perm.

Art **301 History of Art: 19th Century** (3 cr).

Art **302 History of Art: 20th Century** (3 cr).

Art **311 Drawing V** (3 cr, max 6). Advanced drawing with emphasis placed on individual development and exploration of conceptual approaches to drawing. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 211-212, or perm.

Art **312 Drawing VI** (3 cr, max 6). Advanced drawing with emphasis placed on individual development and exploration of conceptual approaches to drawing. Two 3-hr studios a wk and assigned work. Prereq: Art 311 or perm.

Art **314 Textile Design III** (3 cr, max 6). Development of conceptual and technical abilities in the textile arts with emphasis on individual expression and designing for industry. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 214 and 215 or perm.

Art **315 Textile Design IV** (3 cr, max 6). Development of conceptual and technical abilities in the textile arts with emphasis on individual expression and designing for industry. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 214 and 215 or perm.

Art **321 Graphic Design III** (3 cr, max 6). Advanced design problems with emphasis on individual development and exploration of contemporary design issues. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 221 and 222, or perm.

Art **322 Graphic Design IV** (3 cr, max 6). Graphic problem solving in the community environment; advanced production techniques for the graphic designer. Two 3-hr studios a wk and assigned work. Prereq: Art 321 or perm.

Art **331 Painting II** (3 cr, max 6). Intermediate painting in oil or acrylic; emphasis on color assignments and aesthetic problems. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 231 or perm.

Art **332 Painting III** (3 cr, max 6). Advanced painting emphasizing individual conceptual approaches. Two 3-hr studios a wk and assigned work. Prereq: Art 331 or perm.

Art **341 Sculpture II** (3 cr, max 6). Intermediate level studio environment with emphasis on promoting tool safety, material exploration, creative autonomy, portfolio development, and comprehension of historical and contemporary issues relevant to studio projects and sculpture discourse. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 241 or perm.

Art **342 Sculpture III** (3 cr, max 6). Self directed studio environment with emphasis on refining individual direction, advanced application of materials and techniques, portfolio presentation, and comprehension of practical and theoretical concerns for the professional sculptor. Two 3-hr studios a wk and assigned work. Prereq: Art 341 or perm.

Art **351 Printmaking II** (3 cr, max 6). Advanced printmaking; further exploration of printmaking methods and materials; emphasis on individual development in conceptual and technical abilities. Two 3-hr studios a wk and assigned work. Prereq: art core and Art 251 or perm.

Art **352 Printmaking III** (3 cr, max 6). Advanced printmaking; further exploration of printmaking methods and materials; emphasis on individual development in conceptual and technical abilities. Two 3-hr studios a wk and assigned work. Prereq: Art 351 or perm.

Art **361 Ceramics II** (3 cr, max 6). Development and articulation of individual design criteria in ceramics; development of personal conceptual and technical skills in ceramics. Two 3-hr studios a wk and assigned work. Prereq: art core, Art 261 or perm.

Art **362 Ceramics III** (3 cr, max 6). Development and articulation of individual design criteria in ceramics; development of personal conceptual and technical skills in ceramics. Two 3-hr studios a wk and assigned work. Prereq: Art 361 or perm.

Art **371 Interface Design III** (3 cr, max 6). Intermediate multi-media and interface design for computer applications with emphasis on individual development and exploration of contemporary technical and aesthetic design issues. Six hrs of lab a wk and assigned work. Prereq: art core and Art 271-272 or perm.

Art **372 Interface Design IV** (3 cr, max 6). Advanced multi-media and interface design for computer applications with emphasis on team design projects, Web site development and management, and development for stand alone delivery (i.e., CDs, kiosks, etc.). Six hrs of lab a wk and assigned work. Prereq: Art 371 or perm.

Art **391 Collage** (3 cr, max 6). Understanding form in its context by assembling unrelated found objects; emphasis on pictorial integration strategies; tutorial-based studio, production outside of class. Outside lec and special events may be assigned. Prereq: art core and 9 cr of 200-level art studios or perm.

Art **392 Mixed Media** (3 cr, max 6). Understanding synthesis of different media in context to a work of art by using two or more techniques; tutorial-based studio, production to occur outside of class. Outside lec and special events may be assigned. Prereq: art core, 9 cr of 200-level art studios, and 6 cr of 300-level art studios or perm.

Art **400** (s) **Art Seminar** (1-3 cr, max 6). Prereq: perm.

Art **403** (s) **Workshop** (cr arr). Prereq: perm.

Art **404** (s) **Special Topics** (cr arr). Prereq: perm.

Art **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Art **408 Readings in Art** (1-3 cr, max 6). Directed readings in various areas of art including, but not limited to, art history, art theory, and art criticism. Prereq: Art 100, 301-302 or equiv, or perm of instructor before registration.

Art **410 Gallery** (2 cr, max 4). Descriptive analysis of gallery functions; hands-on student participation installing, packaging art works for shipping, lighting, promotions, advertising, and marketing; speakers series of professionals in the field and in allied areas, e.g., gallery directors, artists as presenters/installers, professional art movers. Prereq: adv standing or perm.

Art **488 Faculty Directed Internship** (1-3 cr, max 6). Open only to art majors. Art faculty directed work on a professional project. Prereq: successful completion of one 300-level studio sequence (6 cr), and adviser and directing faculty approval.

Art **490 Art Studio** (8 cr, max 16). Open only to BFA studio art majors. Intensive tutorial studio closely monitored by all the faculty, culminating in development of a portfolio and a professional exhibition. Outside lec and special events may be assigned. Eight formal studio hrs a wk plus studio work to equal 24 hrs involvement a wk. Prereq: senior standing and completion of 15 cr in 300-level art courses with a minimum grade of C and a minimum GPA of 2.5.

Art **495 BFA Senior Thesis** (2 cr, max 4). Open only to B.F.A. studio art majors. BFA majors take 2 semesters. Preparation of thesis, portfolio, and senior exhibition. Prereq: senior standing and completion of 15 cr in 300-level art courses with a minimum grade of C and a minimum GPA of 2.5.

Art **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Art **498** (s) **Internship** (1-12 cr, max 12). Graded P/F. Open to art majors only; no more than 6 cr may be counted toward art degree requirements. Work with professional artists. Prereq: One 300-level studio sequence (6 cr) and perm of dept chair.

Art **499** (s) **Directed Study** (1-3 cr, max 9). Individual study areas selected by the student and approved by the faculty; it is the student's responsibility to select a study area and prepare a semester study program; the student contacts one of the art faculty who agrees to direct the study; it is the student's responsibility to initiate the study program and to maintain regular contact with the faculty member who has agreed to direct the study. Prereq: completion of one 300-level studio sequence (6 cr) and perm.

Art **500 Master's Research and Thesis** (cr arr).

Art **505** (s) **Special Topics** (cr arr). Prereq: perm.

Art **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Art **507** (s) **Art Seminar** (3 cr, max 6). Open only to art majors. Seminar in professional art concerns: guest artist programs, University Gallery activities, including field trips. One 2-hr seminar a wk and assigned work.

Art **508** (s) **Readings in Art** (3 cr, max 6). Open only to art majors. Readings in specific subject or topic areas: art theory, art history; art criticism, and other art subject areas. One hr a wk conference/discussion/seminar and assigned work.

Art **510 Gallery** (1-3 cr, max 6). Descriptive analysis of gallery functions; hands-on student participation installing, packaging art works for shipping, lighting, promotions, advertising and marketing; speakers series of professionals in the field or allied areas; e.g., gallery directors, artists as presenters/installers, professional art movers. Prereq: perm of UI Gallery director.

Art **520** (s) **Studio Workshops** (1-3 cr, max 6). Open only to art majors. Specialized studio experience; offered by art faculty members, faculty groups, and/or guest artists.

Art **521** (s) **MFA/MAT Individual Critique** (3 cr, max 9). Open only to MFA majors. Studio research taken from individual art faculty members; individual instruction and critiques. One hr a wk critique session and 8 hrs a wk of individual studio research.

Art **525** (s) **Art Faculty Studio** (6 cr, max 12). Open only to art majors. Studio research taken from the entire art faculty; students are required to arrange at least two studio critiques/ faculty each semester.

Art **526** (s) **MFA Art Studio** (3-6 cr, max 9). Open only to MFA majors. Studio research taken from two or more art faculty members. Prereq: Art 525 (6 cr) and perm.

Art **590** (s) **MFA Thesis Exhibition** (4-8 cr, max 20). Open only to MFA majors. Studio research directly related to preparation of MFA "Exhibition and Statement." Prereq: Art 525 (6 cr).

Art **597** (s) **Practicum** (3 cr, max 6). Open only to art majors. Classroom assistance in teaching and preparation of course materials; conducted under faculty supervision. Normally requires 4-6 hrs a wk in class and assigned work. Prereq: perm of individual faculty and art grad coordinator.

Art **598** (s) **Internship** (1-6 cr, max 6). Open only to art majors. Work with professional artists. Prereq: perm of major professor and dept chair.

Biological Systems Engineering

James A. DeShazer, Head, Department of Biological and Agricultural Engineering (421 Engineering/Physics Bldg. 83844-0904; phone 208/885-6182; fax 208/885-7908; e-mail baengr@uidaho.edu).

BSyE **142 Engineering for Living Systems** (2 cr). See AgE 142.

BSyE **143 Engineering Problem Solving** (2 cr). See AgE 143.

BSyE **242 Biological Systems Engineering Analysis and Design** (2 cr). Methods of analyzing and solving engineering problems and introduction to elements of design; use of computers in engineering problem solving. Prereq: BSyE 143 or computer science elective in a programming language.

BSyE **ID&WS310 Biological Dynamics for System Design** (3 cr). WSU BSysE 310. Modeling and analysis of biological systems including microbial growth, population dynamics, enzyme kinetics, photosynthesis, respiration, and animal energetics and behavior for designing plant, animal, and microbial systems. Two lec and three hours of lab a wk. Prereq: BSyE 242, Biol 201, Math 310, and Soil 205, 206 or MMBB 250.

BSyE **361 Transport Processes in Biological Systems** (3 cr). Heat and mass transfer processes applied to analysis of biological systems and related equipment and processes. Prereq: Engr 320, Math 310.

BSyE **WS386 Mechanics of Biomaterials** (4 cr). WSU BSysE 320. Composition of biological materials, mechanical and thermal properties, chemical and biological changes. Two lec and one 3-hr lab a wk. Prereq: Engr 335, 350.

BSyE **398 Engineering Cooperative Internship** (cr arr). Supervised internship in professional engineering settings, integrating academic study with work experience; details of the co-op to be arranged with supervising professor before the start of the co-op; requires written report. Graded P/F. Cannot be used for technical elective. Prereq: perm.

BSyE **404** (s) **Special Topics** (cr arr). Prereq: perm.

BSyE **ID-J432/ID-J532 Bioreactor Theory and Design for Waste Treatment** (3 cr). BSyE 532 same as EnvE 544. Theory of biological waste treatment as applied to wastewaters, including reaction kinetics, reactor theory and design, reaction stoichiometry, microbiology, gas transfer theory, suspended growth and attached growth process theory and design, and separation of biological solids. Graduate credit requires additional design project. One field trip. Prereq: Chem 112, Math 310, and Biol 201 or MMBB 250.

BSyE **J433/J533 Bioremediation** (3 cr). BSyE 533 same as EnvE 533. Theory and practice of bioremediation as applied to toxic and hazardous wastes, including reaction kinetics, reaction stoichiometry, microbiology, and design of ex- and in-situ processes. Graduate credit requires additional design project. One-two field trips. Prereq: Math 170; Biol 201 or perm.

BSyE **441 Instrumentation and Measurements for Biological Systems** (3 cr). See AgE 441.

BSyE **ID&WS-J452/J552 Environmental Water Quality** (3 cr). WSU BSysE 452. BSyE 552 same as EnvE 552. Engineering design to monitor, evaluate, and minimize non-point pollution from agriculture, environmentally acceptable disposal of wastes, bioremediation. Graduate credit requires an additional project and report. Two lec and one 3-hr lab a wk. Prereq: AgE 351 or CE 321, Soil 205 or MMBB 250, Chem 112.

BSyE **WS-J455/WS-J555 Natural Systems for Wastewater Treatment** (3 cr). WSU BSysE 455/555.

BSyE **WS457 Design for Watershed Management** (3 cr). WSU BSysE 457/557.

BSyE **460 Engineering Plant and Animal Environments** (2 cr). In-depth analysis of biological interactions used for designing plant and animal facilities and systems; plant and animal welfare, air quality, space, production parameters, water usage, radiant energy, and thermal properties; analytical study of animal and plant energetic relations to the environment; design of greenhouse systems, animal housing systems, ventilation systems, and environmental control systems from basic physical and biological requirements to mathematical modeling of system responses. Prereq: Math 310, Engr 320, Biol 201.

BSyE **462 Electric Power and Controls for Biological Systems** (3 cr). See AgE 462.

BSyE **478 Biological Systems Engineering Design I** (1 cr). Introduction to design process, CAD/CAM facility, product liability, and project scheduling; formulation of a design problem. Prereq: senior standing in BSyE, or perm.

BSyE **479 Biological Systems Engineering Design II** (2 cr). Individual or team design of a biological systems related problem; including synthesis, analysis, construction, and testing; final report required. Two 3-hr labs a wk. Prereq: BSyE 478.

BSyE **WS-J482/WS-J582 Food Process Engineering Design** (3 cr). WSU BSysE 482/582.

BSyE **WS483 Food Separation Processes Design** (3 cr). WSU BSysE 483.

BSyE **WS-J486/WS-J586 Food Rheology** (3 cr). WSU BSysE 486/586.

BSyE **WS-J487/WS-J587 Food Plant Design** (3 cr). WSU BSysE 487/587.

BSyE **WS-J488/WS-J588 Food Powders** (3 cr). WSU BSysE 488/588.

BSyE **491 Seminar** (1 cr). See AgE 491.

BSyE **499** (s) **Directed Study** (cr arr). Prereq: perm.

BSyE **500 Master's Research and Thesis** (cr arr).

BSyE **ID532 Bioreactor Theory and Design for Waste Treatment** (3 cr). See BSyE J432/J532.

BSyE **533 Bioremediation** (3 cr). See BSyE J433/J533.

BSyE **552 Environmental Water Quality** (3 cr). See BSyE J452/J552.

BSyE **WS555 Natural Systems for Wastewater Treatment** (3 cr). See BSyE J455/J555.

BSyE **WS566 Constructed Wetlands for Pollution Control** (2 cr). WSU BSysE 566.

BSyE **WS582 Food Process Engineering Design** (3 cr). See BSyE J482/J582.

BSyE **WS586 Food Rheology** (3 cr). See BSyE J486/J586.

BSyE **WS587 Food Plant Design** (3 cr). See BSyE J487/J587.

BSyE **WS588 Food Powders** (3 cr). See BSyE J488/J588.

BSyE **WS589 Food Quality Instrumentation** (3 cr). WSU BSysE 589.

Biology

R. Francis Rosenzweig, Interim Chair, Dept. of Biological Sciences (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280).

Note: Enrollment in lab sections of departmental courses will be limited to the number of stations available in that section.

Biol **100 Introduction to Biology** (4 cr). May be used as core credit in J-3-b. Not open to majors or for minor cr. Intro to basic principles of biological systems. Three lec and one 3-hr lab a wk.

Biol **101 Perspectives in Biology** (1 cr). Open only to majors. Intro to the disciplines in the fields of biology; current research topics. Graded P/F.

Biol **201 Introduction to the Life Sciences** (4 cr). May be used as core credit in J-3-b. Biological principles important in understanding animals, plants, and microorganisms; cytology; ecology; evolution; genetics; growth; molecular biology; physiology. Three lec, one 3-hr lab, and one 1-hr recitation a wk. Prereq: Chem 101 or 111 or perm.

Biol **202 General Zoology** (4 cr). Same as Zool 202. Anatomy, embryology, histology, and physiology of vertebrate and invertebrate animals; the animal kingdom. Three lec and two 2-hr labs a wk. Prereq: Biol 201.

Biol **203 General Botany** (4 cr). Same as Bot 203. Growth, development, and ecology of angiosperms in relation to heredity and environment; comparisons of angiosperms with other plant-kingdom divisions. Three lec and two 2-hr labs a wk. Prereq: Biol 201.

Biol **211 General Entomology** (4 cr). See Ent 211.

Biol **331 General Ecology** (3 cr) (C). Basic ecological principles and processes affecting the nature and occurrence of populations, communities, and biomes. Three 1-day (Saturday) field trips. Prereq: Biol 201, Math 143 or 160 or 170, and Biol 202 or 203.

Biol **351 General Genetics** (3 cr). Same as Gene 314. Genetic mechanisms in animals, plants, and microorganisms. Prereq: Biol 201.

Biol **352 Experimental Genetics** (2 cr). Same as Gene 315. Techniques for genetic analysis at the organismal and molecular levels. Two 3-hr labs a wk. Prereq: Biol 351 and junior standing (minimum 58 credits).

Biol **353 Introduction to Molecular Biology** (3 cr). Overview of modern molecular genetics in plants, animals, fungi, and microbes preparing undergraduates to understand molecular biology in advanced courses; the nature of the gene; genetics of building a cell; strategies and complexity of genetic regulation; transcription and RNA splicing; genes, development, immunity and cancer; the dynamic genome. Prereq: Biol 351.

Biol **355 Genetics Laboratory** (1 cr). Basic techniques, genetic mapping, uility of mutants, genetic manipulation, and genome dynamics. One 3-hr lab a wk. Prereq: Biol 351.

Biol **398** (s) **Internship** (1-3 cr, max 3). Supervised internship in professional biological, non-university settings, integrating academic study with work experience; requires formal written plan of activities to be approved by academic adviser and department chair before engaging in the work; a final written report will be evaluated by on-campus faculty. Graded P/F. Prereq: perm.

Biol **405 Biological Lab Procedures** (1 or 2 cr). Organization, preparation, and assisting in lab experiments or demonstrations under faculty supervision. Graded P/F. Prereq: perm.

Biol **442 Biological Evolution** (3 cr). Genetic, ecological, and paleontological aspects of evolution, including that of man. Prereq: Biol 202 and 351, or perm.

Biol **J445/J545 Principles of Systematic Biology** (3 cr). The inference of evolutionary trees (phylogeny) and the processes that generate biodiversity from analyses of morphological, molecular, and behavioral data; uses of phylogenies in testing evolutionary and other hypotheses at both inter and intraspecific levels. Additional projects/assignments reqd for grad cr. Two hrs of lec and one 3-hr lab a wk. Prereq: Zool 202 or Bot 203 and Biol 351, or perm.

Biol **499** (s) **Directed Study** (cr arr). Prereq: perm.

Biol **501** (s) **Seminar** (cr arr). Prereq: perm.

Biol **502** (s) **Directed Study** (cr arr). Prereq: perm.

Biol **503** (s) **Workshop** (cr arr). Prereq: perm.

Biol **504** (s) **Special Topics** (cr arr). Prereq: perm.

Biol **505 Colloquium** (1 cr). Oral presentation reqd for cr. Graded P/F. Prereq: perm.

Biol **507** (s) **Research Topics in Biological Sciences** (1 cr). Seminars on research being carried out in the Department of Biological Sciences.

Biol **R531 Environmental Science and Pollutants** (3 cr). Structure and function of ecosystems, sources and characteristics of hazardous materials, mechanisms and pathways of pollutant transport and degradation, mechanisms of pollutant impact on ecosystems and human health. Prereq: Biol 100 or 201 and Chem 101 or 111.

Biol **545 Principles of Systematic Biology** (3 cr). See Biol J445/J545.

Biol **WS556 Cell Biotechnology** (1-3 cr). WSU GenCB 556.

Biol **563 Mathematical Methods for Population Genetics and Evolution** (3 cr). See Math 563.

Botany

R. Francis Rosenzweig, Interim Chair, Dept. of Biological Sciences (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280).

Note: Enrollment in lab sections of departmental courses will be limited to the number of stations available in that section.

Bot **203 General Botany** (4 cr). See Biol 203.

Bot **241 Systematic Botany** (3 cr). Classification and identification of flowering plants; local flora. Two 1-hr lec and two 2-hr labs a wk; four 1-day field trips. Prereq: Biol 203 or perm.

Bot **311 Plant Physiology** (4 cr). Functions of plant growth and development. Three lec and one 3-hr lab a wk. Prereq: Biol 203 and Chem 275 or 277.

Bot **364 Botany Microtechniques** (3 cr). Methods of treating plant tissues for microscopic exam or histochemical tests. Two 3-hr labs a wk. Prereq: Biol 203 or perm.

Bot **398** (s) **Internship** (1-3 cr, max 3). Supervised internship in professional biological, non-university settings, integrating academic study with work experience; requires formal written plan of activities to be approved by academic adviser and department chair before engaging in the work; a final written report will be evaluated by on-campus faculty. Graded P/F. Prereq: perm.

Bot **WS-J406/WS-J506 Microtechnique** (4 cr). WSU Bot 406/506.

Bot **ID-J414/ID-J514 Evolutionary Biology of Plants** (3 cr). A survey of evolutionary processes, with specific applications to plants; topics include breeding systems, species definitions, speciation, hybridization, polyploidy, plastid evolution, and plant conservation biology. A literature review on a topic covered in class or an approved related topic reqd for grad cr. Two hrs of lec and one 2-hr discussion session a wk. Prereq: Biol 203, 351 or perm.

Bot **WS-J417/WS-J517 Stress Physiology of Plants** (3 cr). WSU Bot 417/517.

Bot **J425/J525 Developmental Plant Anatomy** (3 cr). Origin and development of tissues and organs of vascular plants in relation to heredity, environment, and physiology. Cr earned in Bot 525 by completion of analytical term paper. Two lec and one 3-hr lab a wk. Prereq: Biol 203.

Bot **J432/J530 Plant Ecology** (3 cr). General ecologic concepts and theory applied to plant populations and communities; intro to methods in plant ecology. Cr earned in Bot 530 by preparation of critical review of specific ecologic problem. Two lec and one 3-hr lab a wk; three 1-day field trips. Prereq: Biol 203, 331; Bot 241 recommended.

Bot **WS-J435/WS-J545 Plant Environmental Biophysics** (2 cr). WSU ES/RP and SoilS 414/514.

Bot **WS-J436/WS-J546 Plant Environmental Biophysics Lab** (1 cr). WSU ES/RP and SoilS 415/515.

Bot **ID441 Agrostology** (3 cr). WSU Bot 441. Classification, distribution, and structures of grasses. One lec and two 3-hr labs a wk; field labs and two 1-day field trips. Prereq: Biol 203 and Bot 241.

Bot **WS450 Introduction to Cell Biology** (3 cr). WSU GenCB 450.

Bot **452 Principles of Plant Molecular Biology** (3 cr). Thorough intro to core topics of plant biotechnology and genetic engineering: methods for gene manipulation; organization, structure, and expression of genes in nucleus, chloroplasts and mitochondria of plants; methods and prospects for their engineering. Prereq: MMBB 380 or MMBB 480 or Biol 351.

Bot **499** (s) **Directed Study** (cr arr). Prereq: perm.

Bot **500 Master's Research and Thesis** (cr arr).

Bot **501** (s) **Seminar** (cr arr). Prereq: perm.

Bot **502** (s) **Directed Study** (cr arr). Prereq: perm.

Bot **503** (s) **Workshop** (cr arr). Prereq: perm.

Bot **504** (s) **Special Topics** (cr arr). Prereq: perm.

Bot **WS505 Experimental Methods in Plant Physiology** (3 cr). WSU Bot 504.

Bot **WS506 Microtechnique** (4 cr). See Bot J406/J506.

Bot **WS511 Plant Cell Biology** (3 cr). WSU Bot 511.

Bot **512 Plant Growth Substances** (3 cr). Hormonal regulation of physiological processes. Two lec and one 2-hr disc a wk. Prereq: Bot 311 and organic chemistry. (Alt/yrs)

Bot **ID514 Evolutionary Biology of Plants** (3 cr). See Bot J414/J514.

Bot **WS517 Stress Physiology of Plants** (3 cr). See Bot J417/J517.

Bot **WS518 Photosynthesis, Photorespiration, and Plant Productivity** (3 cr). WSU Bot 518.

Bot **525 Developmental Plant Anatomy** (3 cr). See Bot J425/J525.

Bot **530 Plant Ecology** (3 cr). See Bot J432/J530.

Bot **535 Plant Geography** (3 cr). Spatial relations of plants and plant communities as determined by intrinsic factors such as genetics and evolution, and extrinsic factors such as physiography, geology, climate, and climatic change; mechanisms of distribution, discontinuity patterns. One 3-day field trip. Prereq: Bot J432/J530 or perm. (Alt/yrs)

Bot **WS537 Field Ecology** (2 cr). WSU Bot 463/563.

Bot **539 Physiological Ecology** (3 cr). Physiological adaptations to various environmental and habitat conditions and their ecologic consequences. Two lec and one 3-hr lab a wk. Prereq: Bot J432/J530, 311 recommended.

Bot **WS545 Plant Environmental Biophysics** (2 cr). See Bot WS-J435/WS-J545.

Bot **WS546 Plant Environmental Biophysics Lab** (2 cr). See Bot WS-J436/WS-J546.

Bot **556 Advanced Plant Molecular Biology** (3 cr). Molecular biology of plant organelles: structure of chloroplast and mitochondrial genomes and their replication; transcription, translation, and regulation of organelle genes and their interaction with nuclear genomes; genetic engineering of plant organelles-herbicide resistance, cytoplasmic male sterility. Prereq: one semester of biochemistry and/or genetics.

Bot **WS575 Basidiomycetes** (3 cr). WSU Pl P 522.

Bot **WS576 Ascomycetes and Fungi Imperfecti** (3 cr). WSU Pl P 523.

Bot **WS577 Lower Fungi** (2 cr). WSU Pl P 524.

Bot **WS580 Protein Targeting in Plant Cells** (3 cr). WSU Pl Ph 580.

Bot **600 Doctoral Research and Dissertation** (cr arr).

Business

C. Randall Byers, Head, Dept. of Business (338D Admin. Bldg. 83844-3178; phone 208/885-6295; e-mail rbyers@uidaho.edu).

Note: Enrollment in 300- and 400-level business courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.35 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

Bus **100 The Business Profession** (1 cr). Open only to freshmen and sophomores (less than 58 credits). Introduction to the environment in which the business operates and how the roles and responsibility of the business professional vary depending on the functional specialty and the level within the organization; career opportunities in business will be discussed to help students develop a strong sense of future academic and professional direction. Graded P/F. May involve field trips.

Bus **101 Introduction to Business Enterprises** (3 cr). Open to freshmen and sophomores only (less than 58 credits). General overview of business enterprise, including key concepts and issues in production, human resources, management, marketing, information systems, finance, and accounting, as well as economic environment and ethical/social responsibilities. May involve evening exams.

Bus **200** (s) **Seminar** (cr arr).

Bus **204** (s) **Special Topics** (cr arr). Prereq: perm.

Bus **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Bus **250 Introductory Systems Development** (3 cr). Introduction to event-driven and object-oriented systems development in a graphical user interface environment; significant hands-on demonstrations and uses of a variety of integrated application development tools. Prereq: 30 cr.

Bus **261 Real Estate** (3 cr). Listing, selling, leasing, financing, and brokerage; fundamentals of valuation and listing property management. This course has been certified by the Idaho Real Estate Commission.

Bus **C262 Real Estate Finance** (3 cr). Analysis of sources and methods used in the financing of real estate property construction, development, and purchase. This course has been certified by the Idaho Real Estate Commission. Prereq: Bus 261 or a course in essentials of real estate.

Bus **C263 Real Estate Law** (3 cr). Study of Idaho real estate law. This course has been certified by the Idaho Real Estate Commission. Prereq: Bus 261 or a course in essentials of real estate; BLaw 265.

Bus **298** (s) **Internship** (1-3 cr, max 6). Open only to majors in the Dept of Business. Graded P/F. Prereq: perm.

Bus **299** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **301 Financial Management** (3 cr). Policies and practices involved in acquisition, control, and allocation of financial resources in business organizations. May involve evening exams. Prereq: Acct 201, Acct 202, Stat 251 or 271, and Econ 202.

Bus **302 Intermediate Financial Management** (3 cr). Advanced course in managerial finance that addresses more complex issues such as risk in capital budgeting, working capital management, mergers, business failure and reorganization, and lease financing. May involve evening exams. Prereq: Bus 301 or 340-342.

Bus **311 Introduction to Management** (3 cr). Organization, planning, leadership, and control; evolution of philosophies of management, decision making, motivation, human relations, and communication; organizational behavior and theory; history and present management practices, showing interrelationships between the needs and expectations of the individual, the organization, and society. May involve evening exams.

Bus **314 World of Corporate Business** (3 cr). Current key issues affecting large corporations including personal and professional development, corporate governance and takeovers, the role of profits, corporate culture and politics, ethical issues, human resources, social responsibility, government relations, the role and functions of a chief executive officer, and doing business in the international arena; course features senior corporate executives as weekly presenters. Prereq: upper-division standing.

Bus **321 Marketing** (3 cr). Marketing institutions and relationships with economic, political, legal, and social environment; principles, functions, concepts, and issues of marketing within a firm and the relationship of marketing to other business disciplines. May involve evening exams.

Bus **323 Promotional Strategy** (3 cr) (Bus 420). Marketing management point of view; objectives, methods, strategies, budgets, and measures of effectiveness; campaign management including advertising, public relations, sales promotion, reseller support, personal selling. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **324 Buyer Behavior** (3 cr). Behavioral science theories, concepts, and methods applied to the understanding and prediction of consumer behavior; emphasis on structuring marketing policy to fulfill consumer requirements. May involve evening exams. Prereq: Bus 321 or Bus 340-342.

Bus **326 Marketing Channels Management** (3 cr). Analysis of planning, organization, and control issues related to distribution of goods and services; topics include retail and wholesale institutions, channel member behavior patterns, and vertical marketing systems. Prereq: Bus 321 or Bus 340-345.

Bus **332 Quantitative Methods in Business** (3 cr). Survey of management science techniques including constrained optimization and simulation; probability review, forecasting tech including time series analysis and decision theory. May involve evening exams. Prereq: Stat 251 or 271, Math 160 or 170.

Bus **340 Team Building and Group Dynamics** (2 cr). Open only to undergraduate CBE majors. Issues in the formation, development, and management of work groups and teams; problems and characteristics common to group situations and strategies for improving team productivity; specific topics include increasing self-awareness, clarifying and managing team-member roles, understanding intercultural communication, capitalizing on the potential of diverse work groups, problem-solving and decision-making, project planning, and identifying the role of leadership in teams. May involve evening exams. Prereq: upper-division standing in CBE; BLaw 265; coreq: Bus 341 and 342.

Bus **341 Business Systems** (4 cr). Open only to undergraduate CBE majors. Introduction to business as a general system; consideration of external environmental issues using an economy-industry-company framework of analysis and its extension to global scanning; discussion of socio-political forces, domestic and foreign financial markets, the role of technology in organizations; discussion of valuation models and legal issues facing organizations; examination of organizational subsystems including those responsible for generating revenues, producing the product or service, and providing support; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 340 and 342.

Bus **342 Product and Process Planning** (3 cr). Open only to undergraduate CBE majors. An overview of the marketing, engineering, financial, and production decisions involved in developing new products and determining the product mix; examination of the theory, tools, and approaches that can be used to assist managers in making effective new product and process decisions; specific topics include consumer behavior, marketing research, optimization techniques, capital budgeting, and product and process design using Total Quality Management; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 340 and 341.

Bus **343 Planning and Decision Making in Organizations** (2 cr). Open only to undergraduate CBE majors. An overview of the managerial planning process with a focus on business decision making through the collection and analysis of data; decision-making models and approaches, sources of information, value of information, pro-forma financial analysis, and forecasting; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Prereq: Bus 342; coreq: Bus 344 and 345; prereq or coreq: Engl 207, 208, 209, 313, or 317.

Bus **344 Managing the Firm's Resources** (3 cr). Open only to undergraduate CBE majors. An overview of the decisions necessary for the effective management of the firm's financial, human, and information resources; topics include: management of the firm's financial structure, dividend policy, and working capital; attracting, maintaining, and developing the work force; systems planning, requirements analysis, and data design; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 343 and 345.

Bus **345 Business Operating Decisions** (4 cr). Open only to undergraduate CBE majors. An overview of the business operating decisions associated with creating demand for the firm's products and services as well as producing the system outputs; a systems approach is used to illustrate how the various business functions and support staff interact in executing these decisions; examination of the use of information technology to facilitate integration; a comprehensive integrative case is used to illustrate these ideas. May involve evening exams. Coreq: Bus 343 and 344.

Bus **350 Management Information Systems** (3 cr). Data processing applications for business; intro to information systems; data base concepts; analysis, design, and implementation of computer-based information systems and consideration of associated problems. May involve evening exams.

Bus **352 Modern Information Technology** (3 cr). Introduction to IT hardware and software including computers, storage devices, telecommunications equipment, and system software. May involve evening exams. Prereq: Bus 250.

Bus **355 Systems Analysis and Design** (3 cr). Introduction to analysis and design of modern information systems. May involve evening exams. Prereq: Bus 250; Bus 350 OR prereq or coreq: Bus 343.

Bus **362 Real Property Appraisal** (3 cr). Theories and principles in estimating value of natural resources and any attached improvements. This course has been certified by the Idaho Real Estate Commission. Prereq: Bus 261, Econ 202 or perm.

Bus **364 Insurance** (3 cr). Major branches of insurance; principles and practices.

Bus **370 Production/Operations Management** (3 cr). Intro to production/operations management, including product design, process design, facility layout, facility location, job design, work measurement, project management, quality control, inventory management, maintenance, and operations scheduling and control. May involve evening exams. Prereq: Stat 251 or 271 or 301.

Bus **378 Project Management** (3 cr). Planning, organizing, staffing, controlling, and directing an organization's resources for special projects; topics include matrix organizations, cross functional teamwork, budgeting, work breakdown structures, critical path method (CPM), program evaluation and review techniques (PERT), capacity planning, and project control. May involve evening exams.

Bus **380 International Business** (3 cr). International trade and the nature of exchange among nations; socioeconomic environment of the multinational corporation. May involve evening exams. Prereq: Econ 202.

Bus **398** (s) **Internship** (1-3 cr, max 6). Open only to majors in the Dept of Business. Graded P/F. Prereq: perm.

Bus **400** (s) **Seminar** (cr arr). Prereq: perm.

Bus **401 Investments** (3 cr). Functioning of financial markets; types of securities and their suitability to various investment goals. Prereq: Bus 301 or 340-345.

Bus **404** (s) **Special Topics** (cr arr). Prereq: perm.

Bus **405 Portfolio Management** (3 cr). Application of security selection, portfolio theory and construction; financial futures; risk and return in investments; may involve management of actual portfolios. Prereq: Bus 401.

Bus **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Bus **407 Financial Institutions** (3 cr). Management and regulation of commercial and nonmonetary financial institutions including savings and loan institutions. May involve evening exams. Prereq: Bus 301 or 340-345; Econ 343.

Bus **408 Security Analysis** (3 cr). Emphasis on theory and practice of security analysis and other techniques of financial analyses; may involve management of actual portfolios. Prereq: Bus 302; prereq or coreq: Acct 301.

Bus **409 Problems in Financial Management** (3 cr). Analysis of selected topics in financial management; asset allocation; capital budgeting and valuation; synthesis of financial management skills through case analysis; written and oral reports and computer simulations. May involve evening exams. Prereq: Bus 302.

Bus **412 Human Resource Management** (3 cr). Human resource/personnel management functions including recruitment, training, compensation, performance appraisal, health and safety, labor relations, and legal issues. Prereq: BLaw 265 and Bus 311; OR prereq or coreq: Bus 343.

Bus **413 Organizational Behavior** (3 cr). Micro oriented treatment of areas including communication, motivation, group process, conflict, leadership style. Prereq: AgEc 391 or Bus 311; OR prereq or coreq: Bus 343.

Bus **414 Entrepreneurship** (3 cr). Process of providing solutions to identified consumer needs; characteristics of individuals who succeed; sources of venture ideas; evaluating and developing ideas; business plans; franchising.

Bus **416 Staffing and Compensation** (3 cr). Specialized human resource management topics including selection, placement, and career development of employees; development and administration of monetary-nonmonetary reward programs, job evaluation systems, and wage incentive plans. Prereq: Bus 412.

Bus **418 Organization Theory** (3 cr). Macro organization behavior; study of organization structure and processes; how environment, technology, and size impact structure and processes. Prereq: Bus 311; OR prereq or coreq: Bus 343.

Bus **421 Marketing Research and Analysis** (3 cr). Applied research focusing on marketing information needs for managerial decision making; includes research design, data collection methods, statistical analysis, and use of marketing information systems to forecast market and sales potential, measure effectiveness of promotions, and analyze new products and distribution of goods and services. May involve evening exams. Prereq: Stat 251 or 271, and Bus 321; OR prereq or coreq: Bus 343.

Bus **422 Sales Force Management** (3 cr). Selecting, training, compensating, stimulating, supervising, and directing the selling efforts of an outside sales force; organization and method. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **425 Retail Distribution Management** (3 cr) (Bus 325). Analysis of retail operations including location, market selection, capital and physical requirements, store layout, merchandise management, customer relations, channel structure, and channel member relations. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **427 Services Marketing** (3 cr) (Bus 327). Survey of concepts addressing distinctive marketing problems and opportunities in service industries, as well as current issues and trends in the service sector; includes discussion of strategies for marketing services, emphasizing the distinctive challenges and approaches that make the marketing of services different from marketing manufactured goods. May involve evening exams. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **428 Marketing Management** (3 cr). Discussion of major marketing management functions, including market and environmental analysis, as well as marketing planning, strategy, implementation, and control concepts; special emphasis on application of such concepts by developing a marketing plan that identifies market opportunities and proposes relevant marketing programs for a given case study. May involve evening exams. Prereq: Bus 323, 324, 421.

Bus **437 Statistics for Business Decisions** (3 cr). Same as Stat 437. Decision making under risk; the economic theory of information; behavioral issues in decision theory. Prereq: Stat 251 or 271 or 301.

Bus **439 Systems and Simulation** (3 cr). Distribution theory, random numbers, modeling concepts and simulation of queuing and inventory systems. May involve evening exams. Prereq: Bus 332 or 340-345.

Bus **441 Labor Relations** (3 cr). Evolution, structure, and procedures of contemporary labor-management relations; unionization, other concerted activity and employment at will. Prereq: Bus 311 or 340-345.

Bus **452 Business Telecommunications Management** (3 cr). Survey of telecommunications management issues in a business environment; topics include local and wide area networks, telephony, public networks, and application of telecommunications technology in strategic business management. Prereq: Bus 350 or 340-342, and Bus 352.

Bus **453 Database Design** (3 cr). Introduction to modern database management systems and their use in solving business problems. May involve evening exams. Prereq: Bus 355.

Bus **454** (s) **Current Issues in Information Systems** (3 cr, max arr). Discussion of major topics of current importance in information systems. Prereq: Bus 350 or 340-345 and perm.

Bus **455 IS Project** (3 cr). Development of information systems and management of IS projects. May involve evening exams. Prereq: Bus 352, 355, and 453.

Bus **456 Quality Management** (3 cr). Same as Stat 456. Principles of total quality management, with emphasis on problem solving techniques to continually improve processes; customer-driven quality, management and employee participation, statistical process control, product/process design, and process capability. May include evening exams. May involve field trips. Prereq: Stat 251 or 271 or 301.

Bus **470 Purchasing and Materials Management** (3 cr). Overview of materials management function in organizations; includes consideration of purchasing, logistics, and inventory management. Prereq: Bus 370 or 340-345.

Bus **472 Operations Planning and Scheduling** (3 cr). In-depth study of planning and scheduling techniques with emphasis on material requirements planning. May involve evening exams and field trips. Prereq: Bus 370 or 340-345.

Bus **478 Seminar in Operations Management** (3 cr). Readings on current issues in operations management and case studies for analyzing situations faced by operations managers. May involve field trips and/or special projects. Prereq: Bus 370 or 340-345, 456, 472; prereq or coreq: Bus 470.

Bus **481 International Finance** (3 cr). Study of financial problems facing business engaged in international activities; foreign exchange risk management, international diversification, multinational capital budgeting, country risk analysis, financing foreign investments, international financial markets. Prereq: Bus 301 and Bus 380 or Econ 446; or Bus 340-345.

Bus **482 International Marketing** (3 cr). Foreign market operations; economic, cultural, and political aspects of international markets and how they interact with the marketing mix. Prereq: Bus 321; OR prereq or coreq: Bus 343.

Bus **490 Strategic Management** (3 cr). Capstone, integrative course; formulation and implementation of competitive strategies; both written and oral reports and case analysis. May involve evening exams. Prereq: Engl 207 or 208 or 209 or 313 or 317; Bus 301, 311, 321, or Bus 340-345; sr standing.

Bus **499** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **501** (s) **Seminar** (cr arr). Prereq: perm.

Bus **502** (s) **Directed Study** (cr arr). Prereq: perm.

Bus **504** (s) **Special Topics** (cr arr). Prereq: perm.

Bus **505** (s) **Workshop** (cr arr). Prereq: perm.

Bus **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Bus **530 Managing Technical Teams** (3 cr). The human side of managing teams of technical people; topics include organizational design, group process, team building, motivation, conflict management, leadership, empowerment, and performance appraisal. May involve evening exams.

Bus **531 Managing the Design Process** (3 cr). Principles of management as they relate to the design and development of new products and the improvement of existing products; focus on interrelationships between marketing, engineering, and manufacturing functions; topics include strategic implications of design, marketing strategy as it relates to product design, product life cycles, understanding customer needs, translating customer information into product specifications, use of quality management principles in design, time-to-market compression in product development, concurrent engineering, design for manufacturing, and implications of ISO 9000 on design. May involve evening exams and/or field trips. Prereq: undergraduate degree in engineering or perm.

Bus **533 Strategies for Managing Complex Systems** (3 cr). Introduction and application of general systems theory as a framework for understanding system life cycles, system management, and decision making in complex environments; topics include systems approach to problem solving, cost-benefit analysis, risk analysis, uncertainty due to conflict modeled using game theory, simulation, and linear programming. May involve evening exams. Prereq: Stat 251 or 271 or 301, Math 160 or 170.

Bus **534 Management of Technology and Technological Change** (3 cr). Introduction to advanced engineering, information, and manufacturing technologies; exploration of opportunities and challenges these technologies present the organization; topics include technology life cycles, the use of technology for competitive advantage, information systems, human-technology interactions, and managing changes; technologies considered include computer aided design/computer aided manufacturing, computer integrated manufacturing, group technology, flexible manufacturing systems, group decision support systems, and expert systems. May involve evening exams and/or field trips.

Bus **WS582 International Marketing Management** (3 cr). WSU I Bus 582. Open only to participants in College of Business and Economics International Exchange Programs.

Bus **597** (s) **Practicum** (cr arr). Prereq: perm.

Bus **598** (s) **Internship** (cr arr). Prereq: perm.

Bus **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Business Education

James M. Cassetto, Interim Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).

BuEd **101-102 Typewriting I-II** (2 cr). BuEd 101: development of skill sufficient for personal use. BuEd 102: speed and control to occupational competence levels.

BuEd **104 Keyboarding** (1 cr). Microcomputer keyboarding skills development. Accelerated 9-wk course. Two lec and 2 hrs of lab a wk.

BuEd **111 Computer Skills** (3 cr). Same as ITED 111. Fundamentals of computing; modules on telecommunications, hardware and software components, basic computing applications, and current computing trends.

BuEd **185 Machine Calculation** (2 cr). Operation of commonly used office adding-calculation machines for the solution of business mathematics problems.

BuEd **200** (s) **Seminar** (cr arr). Prereq: perm.

BuEd **203** (s) **Workshop** (cr arr). Prereq: perm.

BuEd **204** (s) **Special Topics** (cr arr). Prereq: perm.

BuEd **J210/J410 Alphabetic Shorthand I** (1 or 2 cr). Alphabetic shorthand theory, practice, dictation, and transcription (1 cr, 1/2 sem); comparative analysis of alphabetic shorthand systems and methods of teaching alpha shorthand (1 cr, 1/2 sem). Additional projects/assignments reqd for upper-div cr. Two lec and 2 hrs of lab a wk.

BuEd **298** (s) **Internship** (cr arr). Prereq: perm.

BuEd **299** (s) **Directed Study** (cr arr). Prereq: perm.

BuEd **311 Alphabetic Shorthand II** (2 cr). Speed and transcription skill development including machine transcription and methods of teaching alphabetic shorthand for vocational preparation and note taking.

BuEd **C312 Local Government Records Management** (2 cr) (C). Primarily for city clerks and other city officials. Records management, microfilming, filing, and filing equipment useful in city government record-keeping functions; legal requirements of destruction and disposal of city records in Idaho; practice of a number of city officials in Idaho in indexing city council meetings and maintaining city council files.

BuEd **328 Computer Operating Systems for Technology** (4 cr). See ITED 328.

BuEd **395 Administrative Office Procedures** (3 cr). Administrative office procedures, components, and responsibilities.

BuEd **398** (s) **Internship** (cr arr). Prereq: perm.

BuEd **400** (s) **Seminar** (cr arr). Prereq: perm.

BuEd **403** (s) **Workshop** (cr arr). Prereq: perm.

BuEd **404** (s) **Special Topics** (cr arr). Prereq: perm.

BuEd **410 Alphabetic Shorthand** (1 or 2 cr). See BuEd J210/J410.

BuEd **413 Administrative Office Management** (3 cr). Prepares students to assume management role in supervision of people, procedures, and equipment.

BuEd **J415/J515 Microcomputer Applications** (3 cr) (415, C). Same as ITED J415/J515. Advanced computer applications course designed primarily for office administration and business teacher education students; includes extensive hands-on experience using word processing, spreadsheet, and database programs used in both industry and business education programs; addresses methodology, curriculum development, and classroom management techniques; involves sizable curriculum development project. Graduate students do an advanced project. Three lec and 2 hrs of lab a wk. Prereq: BuEd 111 and/or perm.

BuEd **418 Teaching Consumer Economics** (2 cr). Methods and materials for teaching consumer economics. Prereq: Econ 201 or 100 or equiv.

BuEd **J419/J519 Information Processing Management** (3 cr). Same as ITED J419/J519. Teaching and training strategies for information retrieval, processing, storage, and distribution utilizing state-of-the-art hardware, software, technology and database management principles. Advanced project reqd for grad cr. One lec and 2 hrs of lab a wk. Prereq: BuEd 111 or perm.

BuEd **430 Supervising Business Professionals of America** (2 cr). Planning, implementation, and supervision of the Business Professionals of America vocational student organization; includes attendance at competitive events. Two lec and 2 hrs of lab a wk; attendance at regional and state leadership conference.

BuEd **457 Transitioning to Work** (2-3 cr). See ACTE 457.

BuEd **460 Desktop Publishing** (3 cr) (C). Same as ITED 460. Advanced desktop publication techniques, concepts, and applications through use of computer technology; planning, layout, and design of publications are highlighted. Prereq: BuEd/ITED 111 and BuEd/ITED 415 or perm.

BuEd **490 Records Management** (3 cr). ARMA filing rules, organization and maintenance of paper files, using database management software.

BuEd **491-492 Teaching Business Education I-II** (2-3 cr). Methods and materials. BuEd 491: basic business subjects. BuEd 492: office occupations. Prereq: perm.

BuEd **493 Teaching Marketing Education** (3 cr). Selection, organization, and presentation of subject matter pertaining to preparatory marketing education programs at the secondary-school level; emphasis on teaching methods and techniques.

BuEd **494 Marketing Education Materials** (2 cr). Examination, development, and application of instructional materials in marketing education.

BuEd **495 Supervising DECA Programs** (2 cr). Role of DECA in marketing education; organization and implementation of youth activities.

BuEd **496 Directed Work Experience** (1-3 cr, max 9). Same as PTE 496. Job analysis and descriptions; weekly work-experience reports and analysis coordinated with problems related to the student's employment in an approved work station. Prereq: perm.

BuEd **497** (s) **Practicum** (cr arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

BuEd **498** (s) **Internship** (cr arr). Prereq: perm.

BuEd **499** (s) **Directed Study** (cr arr). Prereq: perm.

BuEd **500 Master's Research and Thesis** (cr arr).

BuEd **501** (s) **Seminar** (cr arr). Prereq: perm.

BuEd **502** (s) **Directed Study** (cr arr). Prereq: perm.

BuEd **503** (s) **Workshop** (cr arr). Prereq: perm.

BuEd **504** (s) **Special Topics** (cr arr). Prereq: perm.

BuEd **515 Microcomputer Applications** (3 cr). See BuEd J415/J515.

BuEd **519 Information Processing Management** (3 cr). See BuEd J419/J519.

BuEd **520 Office Occupations Subjects** (3 cr). Methods and materials; achievement standards; review of literature and research. Prereq: perm.

BuEd **521 Basic Business Subjects** (3 cr). Methods and materials; achievement standards; review of literature and research. Prereq: perm.

BuEd **522 Issues in Business Education** (3 cr). Philosophies, objectives, trends, and organization patterns of business education in secondary schools. Prereq: perm.

BuEd **524 Issues in Marketing Education** (3 cr). Same as PTE 524. Philosophies, objectives, trends, and organization patterns of marketing education in secondary schools. Prereq: perm.

BuEd **597** (s) **Practicum** (cr arr). Prereq: perm.

BuEd **598** (s) **Internship** (cr arr). Prereq: perm.

BuEd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Business Law

C. Randall Byers, Head, Dept. of Business (338D Admin. Bldg. 83844-3178; phone 208/885-6295; e-mail rbyers@uidaho.edu).

Note: Enrollment in 400-level business law courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.35 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

BLaw **265 Legal Environment of Business** (3 cr) (C). Law and its relationship to society; legal framework of business enterprises; court organization and operation; private property and contracts as basic concepts in a free enterprise system. May involve evening exams.

BLaw **420 Commercial Law** (3 cr). Uniform commercial code and law of agency, partnerships, and corporations. May include evening exams. Prereq: BLaw 265.

Chemical Engineering

Roger A. Korus, Chair, Dept. of Chemical Engineering (312 Buchanan Engr. Lab. 83844-1021; phone 208/885-6793).

ChE **110 Introduction to Chemical Engineering** (1 cr). Introduction to chemical engineering career opportunities and process principles including problem solving and documentation skills. Graded P/F.

ChE **123 Computations in Chemical Engineering** (2 cr). Methods of analyzing and solving problems in chemical engineering using personal computers; spreadsheet applications, data handling, data fitting, material balances, experimental measurements, separations, and equation solving. Coordinated lec-lab periods.

ChE **204** (s) **Special Topics** (cr arr). Prereq: perm.

ChE **223 Material and Energy Balances** (3 cr). Conservation of mass and energy calculations in chemical process systems. Prereq: Chem 112, Math 175.

ChE **299** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **326 Chemical Engineering Thermodynamics** (3 cr). Behavior and property estimation for nonideal fluids; phase and reaction equilibria; applications to industrial chemical processes. Prereq: ChE 223, Engr 320 and 335, Math 310; coreq: Chem 305.

ChE **330 Stagewise Operations** (3 cr). Stagewise operations, including distillation, extraction, ion exchange, absorption. Prereq: ChE 223, 326, Engr 320; prereq or coreq: Chem 305.

ChE **340-341 Transport and Rate Processes I-II** (4 cr) (ChE 430-431). Transport phenomena involving momentum, energy, and mass with applications to process equipment design. Coordinated lec-lab periods. Prereq for 340: ChE 223, Engr 320 and 335, Math 310. Prereq for 341: ChE 340.

ChE **393 Chemical Engineering Projects** (1-3 cr, max 9). Problems of a research or exploratory nature. Prereq: perm of dept.

ChE **398** (s) **Engineering Cooperative Internship** (3 cr). Supervised internship in professional engineering settings, integrating academic study with work experience; requires written report; positions are assigned according to student's ability and interest. Graded P/F. Prereq: perm.

ChE **404** (s) **Special Topics** (cr arr). Prereq: perm.

ChE **415 Integrated Circuit Fabrication** (3 cr). Growth of semiconductor crystals, microlithography, and processing methods for integrated circuit fabrication. Prereq: ChE 223.

ChE **423 Reactor Kinetics and Design** (3 cr). Chemical reaction equilibria, rates, and kinetics; design of chemical and catalytic reactors. Prereq: ChE 223, Math 310, Chem 305.

ChE **433 Chemical Engineering Lab I** (1 cr). Lab experiments in chemical engineering. Prereq: ChE 330, 341, 423.

ChE **434 Chemical Engineering Lab II** (1 cr). Lab experiments in chemical engineering. Prereq: ChE 330, 341, 423.

ChE **444 Process Analysis and Control** (3 cr). Process modeling, dynamics, and analysis. Prereq: ChE 223, Math 310.

ChE **445 Digital Process Control** (3 cr). Same as EE 477. Dynamic simulation of industrial processes and design of digital control systems. Two lec and one 3-hr lab a wk. Prereq: ChE 444 (prereq for EE majors: EE 350).

ChE **453-454 Chemical Process Analysis and Design** (3 cr). Estimation of equipment and total plant costs, annual costs, profitability decisions, optimization; design of equipment, alternate process systems and economics, case studies of selected processes. ChE 453 and 454 are to be taken in sequence. Prereq: ChE 330, 341, 423.

ChE **J460/ID&WS-J560 Biochemical Engineering** (3 cr). WSU Ch E 560. ChE 560 same as EnvE 560. Application of chemical engineering to biological systems including fermentation processes, biochemical reactor design, and biological separation processes. Additional projects/assignments reqd for grad cr.

ChE **J470/J570 Hazardous Waste Management** (3 cr). ChE 570 same as EnvE 570. Credit not granted for both ChE J470/J570 and EnvS R470. Principles and practices of management of hazardous and solid wastes with emphasis on CERCLA (Superfund) process for cleanup of uncontrolled hazardous waste sites and RCRA process as it applies to industrial waste treatment, storage, and disposal (TSD) facilities. Additional projects/assignments reqd for grad cr. Prereq: Stat 301, sr or grad standing in science or engineering, and perm.

ChE **ID&WS-J475/ID&WS-J575 Air Pollution Control** (2-3 cr). WSU C E 408/508. ChE 575 same as EnvE 575. Analysis and design of physical and chemical methods of air pollution control; particulate and gas emission control methods, standards for sources. Additional projects/assignments reqd for grad cr. Prereq: Engr 335 or perm.

ChE **ID-J480/ID-J580 Engineering Risk Assessment for Hazardous Waste Evaluations** (3 cr). WSU ES/RP 473/573. ChE 580 same as EnvE 580. Quantitative and qualitative approaches to assessing risks to public health and environment from chemical contaminants; toxicology, exposure assessment, risk characterization, and environmental modeling; critical reviews of specific toxins and actual waste site studies. Additional projects/assignments reqd for grad cr. Prereq: senior or grad standing in science or engineering; Biol 201 or 100 and Stat 301 or perm; ChE J470/J570 recommended.

ChE **491** (s) **Seminar** (1 cr). Recent developments and topics. Graded P/F. Prereq: sr standing.

ChE **499** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **500 Master's Research and Thesis** (cr arr).

ChE **501** (s) **Seminar** (cr arr). Prereq: perm.

ChE **502** (s) **Directed Study** (cr arr). Prereq: perm.

ChE **504** (s) **Special Topics** (cr arr). Prereq: perm.

ChE **ID&WS515 Transport Phenomena** (3 cr). Same as ME 515. WSU Ch E 510. Advanced treatment of momentum, energy, and mass transport processes; solution techniques. Prereq: B.S.Ch.E. and equivalent of ChE 340, 341 or perm.

ChE **ID&WS527 Thermodynamics** (3 cr). WSU Ch E 527. Thermodynamic laws for design and optimization of thermodynamic systems, equations of state, properties of ideal and real fluids and fluid mixtures, stability, phase equilibrium, chemical equilibrium, applications of thermodynamic principles. Prereq: B.S.Ch.E. and equivalent of ChE 326 or perm.

ChE **ID&WS529 Chemical Engineering Kinetics** (3 cr). WSU Ch E 529. Interpretation of kinetic data and design of reactors for heterogeneous chemical reaction systems; heterogeneous catalysis, gas-solid reactions, gas-liquid reactions; packed bed reactors, fluidized bed reactors. Prereq: B.S.Ch.E. and equivalent of ChE 423 or perm.

ChE **541 Chemical Engineering Analysis I** (3 cr). Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer applications. Prereq: B.S.Ch.E. and equivalent of ChE 444 or perm.

ChE **ID&WS545-ID&WS546 Mass Transfer Operations I-II** (3 cr). WSU Ch E 546. Diffusional and equilibrium operations. Prereq: B.S.Ch.E. and equivalent of ChE 341 or perm.

ChE **ID&WS560 Biochemical Engineering** (3 cr). See ChE J460/J560.

ChE **570 Hazardous Waste Management** (3 cr). See ChE J470/J570.

ChE **ID571 Advanced Plant Design** (3 cr). WSU Ch E 571. Design of process plants for optimum costs and economic return; scale-up of pilot plants. Prereq: B.S.Ch.E. and equivalent of ChE 453 or perm.

ChE **ID&WS575 Air Pollution Control** (2-3 cr). See ChE J475/J575.

ChE **578 Treatment of Hazardous Chemical Waste** (3 cr). Same as EnvE 578. Design of alternative processes and operations for treatment of hazardous chemicals. Prereq: Math 310 and ChE 341 or CE 431.

ChE **579 Hazardous Waste Site Remediation Design** (3 cr). Same as EnvE and Hydr 579. Characterization of hazardous waste sites, identification of physical, chemical, and biological corrective action programs and site restoration; includes design problems and case studies to illustrate corrective action and site restoration in compliance with regulations. Prereq: Geol 309.

ChE **ID580 Engineering Risk Assessment for Hazardous Waste Evaluations** (3 cr). See ChE J480/J580.

ChE **581 Hazardous Waste Management Seminar** (1 cr). Environmental engineering and science topics related to hazardous waste characterization, cleanup, and regulations; includes case histories, paper, and oral presentation. Prereq: perm.

ChE **600 Doctoral Research and Dissertation** (cr arr).

Chemistry

Chien M. Wai, Chair, Dept. of Chemistry (116 Malcolm M. Renfrew Hall 83844-2343; phone 208/885-6552; e-mail cwai@uidaho.edu).

RELATED FIELD: See microbiology, molecular biology and biochemistry.

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: 111-113-253, 111-112; 101-275.

NOTE: Students may not register for a course lower in number than that required by their major. When a change in degree requirements forces a student to take a higher number course after completing a lower number course, a maximum of two credits (earned in Chem 299) will be awarded for the higher number course.

Chem **050 Chemistry Fundamentals** (0 cr). Chemical problem solving, SI unit conversion, mole concept, chemical stoichiometry, solution concentration problems, periodic table, chemical formulas and nomenclature, and equation balancing. Graded P/N/F. A special fee is charged for this course.

Chem **100 Chemistry and the Citizen** (4 cr). May be used as core credit in J-3-b. Not acceptable as a substitute where Chem 101, 111, or equiv is specified. Full credit may be earned in only one of the following: Chem 100, 101, or 111. Nonmathematical descriptive treatment relating key developments of chemistry to modern living. Three lec, dem, and one 2-hr lab a wk.

Chem **101 Introduction to Chemistry I** (4 cr). May be used as core credit in J-3-b. Full credit may be earned in only one of the following: Chem 100, 101, or 111. General treatment of the fundamentals of chemistry. Three lec, one recitation, and one 3-hr lab a wk. Does not satisfy the prereq for Chem 112 or 113. No prerequisite.

Chem **111 Principles of Chemistry I** (4 cr). May be used as core credit in J-3-b. Full credit may be earned in only one of the following: Chem 100, 101, or 111. Intensive treatment of principles and applications of chemistry. Three lec, one recitation, and one 3-hr lab a wk. Prereq: Chem 050 or adequate score on the chemistry fundamentals exam or satisfy departmental requirement.

Chem **112 Principles of Chemistry II** (4 cr). May be used as core credit in J-3-b. Continuation of Chem 111 for students who do not plan to take further professional chemistry courses. Some work in inorganic, organic, and biochemistry, electrochemistry, nuclear chemistry, and in qualitative inorganic analysis. Max six cr in Chem 112 and 113 combined. Three lec, one recitation, and one 3-hr lab a wk. Prereq: Chem 111 or perm.

Chem **113 Inorganic Chemistry and Qualitative Analysis** (5 cr). May be used as core credit in J-3-b. Elem theoretical chemistry and applications to analytical practice; lab work in the qualitative separation of cations and anions by semimicro methods. Max six cr in Chem 112 and 113 combined. Three lec, one recitation, and two 3-hr labs a wk. Prereq: Chem 111 or perm.

Chem **121 Glassblowing** (1 cr). Techniques used in constructing scientific apparatus from glass. Graded P/F. One 3-hr lab a wk. Prereq: perm of dept.

Chem **200** (s) **Seminar** (cr arr). Prereq: perm.

Chem **204** (s) **Special Topics** (cr arr). Prereq: perm.

Chem **253 Quantitative Analysis** (5 cr). Fundamental principles and techniques of chemical analysis; intro to sampling, standardization, data evaluation, gravimetric/volumetric methods, and instrumental techniques. Three lec and two 3-hr labs a wk. Prereq: Chem 112 or 113. (Fall only)

Chem **275 Carbon Compounds** (3 cr). Aspects of organic chemistry important to students in the life sciences. Duplicate cr will not be allowed in first-year courses in organic chemistry. Prereq: Chem 101, 111 or perm.

Chem **276 Carbon Compounds Lab** (1 cr). Lab to accompany Chem 275; for students who need only 1 cr of lab. One 3-hr lab a wk. Prereq or coreq: Chem 275 or 277.

Chem **277 Organic Chemistry I** (3 cr). Principles and theories of organic chemistry; properties, preparation, and reactions of organic compounds. Duplicate cr will not be allowed in first-year courses in organic chemistry. Prereq: Chem 112 or 113.

Chem **278 Organic Chemistry I: Lab** (1 cr). One 3-hr lab a wk. Prereq or coreq: Chem 277.

Chem **299** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **302 Principles of Physical Chemistry** (3 cr). Emphasis on topics important to biological and agricultural science. Prereq: Chem 112 or 113, Math 160 or 170 or 175 and Phys 111, or perm. (Fall only)

Chem **303 Principles of Physical Chemistry Lab** (1 cr). Lab to accompany Chem 302. One 3-hr lab a wk. Prereq or coreq: Chem 302. (Fall only)

Chem **305-306 Physical Chemistry** (3 cr). Kinetic theory, thermodynamics, quantum mechanics, and spectroscopy. Prereq: Chem 112 or 113, Math 275; prereq or coreq: Phys 212 or 213. (Chem 305: fall only; Chem 306: spring only)

Chem **307-308 Physical Chemistry Lab** (1 cr). Lab to accompany Chem 305-306. One 3-hr lab a wk. Prereq or coreq for Chem 307: Chem 305; prereq or coreq for Chem 308: Chem 306. (Chem 307: fall only; Chem 308: spring only)

Chem **J318/J418 Environmental Chemistry** (3 cr). Chemistry of atmosphere, soil, and water; pollution monitoring and remediation; treatment of waste in the environment. Registration for Chem 418 requires additional project. Prereq: Chem 253, and Chem 275 or 277, or perm. (Spring only)

Chem **372 Organic Chemistry II** (3 cr). Continuation of Chem 277. Prereq: Chem 277. (Spring only)

Chem **374 Organic Chemistry Lab for Engineers** (1 cr). For students in engineering. Lab to accompany Chem 372; includes synthesis, structure determination, and mechanisms. One 3-hr lab a wk. Prereq: Chem 278; prereq or coreq: Chem 372. (Spring only)

Chem **376 Organic Chemistry II: Lab** (2 cr). Lab to accompany Chem 372, includes qualitative analysis and modern instrumental techniques. Two 3-hr labs a wk. Prereq: Chem 278; prereq or coreq: Chem 372. (Spring only)

Chem **400** (s) **Seminar** (cr arr). Prereq: perm.

Chem **404** (s) **Special Topics** (cr arr). Prereq: perm.

Chem **409 Proseminar** (1 cr). Current publications in chemistry and chemical engineering with reports on typical scientific papers. Prereq: Chem 372 and sr standing. (Fall only)

Chem **418 Environmental Chemistry** (3 cr). See Chem J318/J418. (Spring only)

Chem **J435/J535 Principles of Chemical Instrumentation** (4 cr). Practical theory and application of modern analog/digital electronics and small computers to chemical measurement and control systems. Registration for Chem 535 requires completion of an additional term paper or other assignment. One hr of lec and one 3-hr lab a wk. Prereq: Chem 253 or 454, Phys 212, or perm. (Fall only)

Chem **441 Chemical Literature** (1 cr). Survey of important chemistry reference works and periodicals; use of these sources. Prereq: perm. (Spring only)

Chem **J453/J553 Separation Theory and Chromatography** (3 cr). Gas and liquid chromatography and related fields. Students enrolled in Chem 553 are required to complete additional written assignments. Prereq: Chem 306.

Chem **454 Instrumental Analysis** (4 cr). For students in chemistry and allied fields. Techniques in operating new and specialized instruments for qualitative and quantitative analysis and analytical methods of an advanced nature. Three lec and one 4-hr lab a wk. Prereq: Chem 253, 305; prereq or coreq: Chem 306. (Spring only)

Chem **455 Survey of Analytical Chemistry** (3 cr). Fundamentals of modern analytical chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 454 and 455. Prereq: Chem 306 and perm.

Chem **J456/J556 Molecular Spectroscopy** (3 cr). Interpretation of IR, UV, NMR, and mass spectra. Registration for Chem 556 requires completion of additional assignments. Prereq: Chem 306 or perm.

Chem **463-J464/ID-J564 Inorganic Chemistry** (3 cr). WSU Chem 507. Principles, complex ions and coordination compounds, theory of acids and bases, bonding theory, non-aqueous solvents, familiar elements and their relationship to the periodic table. Additional projects/assignments reqd for grad cr. Prereq for 463: Chem 305 or perm; prereq or coreq for Chem J464/J564: Chem 463, or 466, or perm. (Chem 463: fall only; Chem 464: spring only)

Chem **465 Inorganic Chemistry Laboratory** (1 cr). Lab to accompany Chem 464. One 3-hr lab a wk. Coreq: Chem 464. (Spring only)

Chem **466 Survey of Inorganic Chemistry** (3 cr). Fundamentals of modern inorganic chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 463 and 466. Prereq: Chem 306 and perm.

Chem **J467/J567 Inorganic Spectroscopy** (3 cr). Applications of spectroscopic methods to investigation of inorganic and organometallic compounds; topics include multinuclear and multidimensional NMR, IR and Raman, EPR, mass spectroscopy, Mossbauer spectroscopy, and x-ray crystallography. Additional projects/assignments reqd for grad cr. Prereq: Chem 306, 454.

Chem **J468/ID-J568 Organometallic Chemistry** (3 cr). WSU Chem 504. Structure, bonding, and reaction chemistry of organotransition metal compounds; applications to homogeneous catalysis. Additional projects/assignments reqd for grad cr. Prereq: Chem 305-306; prereq or coreq: Chem 463 or 466 or perm.

Chem **J472/J572 Rational Design of Pharmaceuticals** (3 cr). Synthetic chemistry necessary for design and preparation of medicinal agents, and mechanistic chemistry germane to action of pharmaceuticals. Graduate students are required to write an original research proposal on a topic related to drug discovery. Prereq or coreq: Chem 473, 476 or perm.

Chem **473 Intermediate Organic Chemistry** (3 cr). Theories and mechanisms of organic chemistry. Prereq: Chem 372; prereq or coreq: Chem 306. (Fall only)

Chem **476 Survey of Organic Chemistry** (3 cr). Fundamentals of modern organic chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 473 and 476. Prereq: Chem 306 and perm.

Chem **484 Biochemistry Laboratory** (2 cr). See MMBB 484.

Chem **486 Plant Biochemistry** (3 cr). See MMBB J486/J586.

Chem **491** (s) **Research** (1-6 cr, max 6). Submission of a report of the research done for placement in the permanent dept files is required. Prereq: perm of dept.

Chem **495 Thermodynamics and Kinetics** (3 cr). Prereq: Chem 306 or equiv. (Fall only)

Chem **496 Survey of Physical Chemistry** (3 cr). Fundamentals of modern physical chemistry. Open only to chemistry M.S. and Ph.D. students. Cr is not allowed in both Chem 495 and 496. Prereq: Chem 306 and perm.

Chem **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Chem **498** (s) **Internship** (cr arr). Prereq: perm.

Chem **499** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **500 Master's Research and Thesis** (cr arr).

Chem **501** (s) **Seminar** (cr arr). Prereq: perm.

Chem **502** (s) **Directed Study** (cr arr). Prereq: perm.

Chem **504** (s) **Workshop** (cr arr). Prereq: perm.

Chem **506 Introduction to Teaching and Research Skills** (2 cr). Skills required of teaching assistants in laboratory, recitations, office hours, help sessions; skills required for research; use of library; introduction to faculty research. Graded P/F. Prereq: perm. (Fall only)

Chem **507** (s) **Topics in Physical Chemistry** (1-9 cr, max 9). Selected topics in modern physical chemistry such as computational quantum mechanics, statistical mechanics, nonequilibrium thermodynamics, group theory, molecular dynamics, theory of condensed phases, or other topics not covered in regularly scheduled courses. Prereq: Chem 495, 496, or perm.

Chem **509-510 Advanced Physical Chemistry** (3 cr). Application of quantum theory to chemical bonding, molecular spectroscopy, and molecular structure. Prereq: Chem 306, 495, 496, or perm. (Chem 509: spring only; Chem 510: fall only)

Chem **513 Nuclear Chemistry** (3 cr). Intro to artificial and natural radioactivity, tracer methods, and atomic energy. Prereq: Chem 306 or Phys 315 or perm.

Chem **535 Principles of Chemical Instrumentation** (4 cr). See Chem J435/J535.

Chem **541-542 Biochemistry** (3 cr). See MMBB 541-542.

Chem **550 Radioanalytical Chemistry** (3 cr). Fundamental concepts of radiochemistry, including the principles of radioactive decay processes and counting techniques; in-depth treatment of radioanalytical techniques, especially neutron activation and isotope dilution methods; decay processes as sources of x-rays; the use of synchrotron radiation in analytical chemistry. Prereq: Chem 454, or 455, or perm.

Chem **551 Electronic Spectrometry** (3 cr). A brief review of fundamental concepts, including electronic transitions, optical properties of materials, and laws of radiation absorption; detailed coverage of instrumentation used for ultraviolet and visible absorption spectroscopy, with regard to optical components, overall design strategy, and signal processing; analytical performance related to these aspects and presented from both theoretical and practical standpoints; in-depth coverage of luminescence spectroscopy, including phosphorimetry and fluorimetry; atomic spectroscopy (both flame and plasma-based versions), including principles of operation, instrumental requirements, and analytical application; survey of x-ray absorption and fluorescence spectroscopy. Prereq: Chem 454, 455 or perm.

Chem **552 Analytical Vibrational Spectrometry** (3 cr). Introduction to vibrational transitions, optical properties of materials, and laws of radiation absorption and emission (including why they are not always obeyed in practice); detailed discussion of instrumentation used for mid-infrared, near infrared, and Raman spectrometry; illustration of transmission spectrometry with examples including microscopy and spectral imaging, open-path monitoring, and spectroscopy of aqueous solutions and hyphenated techniques; introduction of time- and phase-resolved measurements; detailed coverage of specular reflection, reflection-absorption of thin films, diffuse reflection, attenuated total reflection spectrometry, and remote measurements through optical fibers; discussion of application of near infrared spectroscopy to agricultural commodity analysis and process monitoring. Prereq: Chem 454, 455 or perm.

Chem **553 Separation Theory and Chromatography** (3 cr). See Chem J453/J553.

Chem **555 Advanced Analytical Chemistry** (3 cr). Fundamental principles of analysis; sampling; measurement validation; statistical evaluation; optimization techniques; pattern recognition; information theory. Prereq: Chem 306, 454, 455, or perm.

Chem **556 Molecular Spectroscopy** (3 cr). See Chem J456/J556.

Chem **557** (s) **Topics in Analytical Chemistry** (1-9 cr, max 9). Atomic and molecular analytical spectroscopy; modern electrochemical methods; radioanalytical techniques; surface analysis techniques. Prereq: Chem 454, 455, or perm.

Chem **558 Electrochemistry** (3 cr). Fundamental concepts of electrochemistry, including the principles of redox processes; in-depth treatment of electroanalytical techniques, especially voltammetric and potentiometric methods; advanced treatment of selected topics, including ultramicro and in vivo electrochemical techniques. Prereq: Chem 454, or 455, or perm. (Alt/yrs)

Chem **561 Advanced Inorganic Chemistry** (3 cr). Theoretical approach to the underlying principles of inorganic chemistry; integration of theory and descriptive chemistry. Prereq: Chem 306, 463, 466, or perm.

Chem **ID564 Inorganic Chemistry** (3 cr). See Chem 463-J464/J564.

Chem **ID565** (s) **Topics in Inorganic Chemistry** (1-9 cr, max 9). WSU Chem 508. Coordination compounds; halogens; less familiar elements; clathrate, interstitial, nonstoichiometric compounds; chemical bonding; inorganic reaction mechanisms. Prereq: Chem 463, 466, or perm.

Chem **567 Inorganic Spectroscopy** (3 cr). See Chem J467/J567.

Chem **ID568 Organometallic Chemistry** (3 cr). See Chem J468/J568.

Chem **569 Fluorine Chemistry** (3 cr). Brief history of fluorine beginning with its isolation in 1886 through current areas of interest in fluorochemicals; in-depth study of modern synthetic methods of fluorinated compounds and their potential applications today and in the future. Prereq: Chem 463, 466, or perm.

Chem **571** (s) **Topics in Organic Chemistry** (1-9 cr, max 9). Selected topics from the current literature. Prereq: Chem 473, 476, or perm.

Chem **572 Rational Design of Pharmaceuticals** (3 cr). See Chem J472/J572.

Chem **573 Synthetic Organic Chemistry** (3 cr). Use of organic reactions in synthesis. Prereq: Chem 473, 476, or perm.

Chem **582 Proteins and Enzymes** (3 cr). See MMBB 582.

Chem **583 Lipids and Membranes** (3 cr). Biosynthesis and metabolism of major classes of complex lipids and sterols; structure, function, and properties of biomembranes and membrane models. Prereq: MMBB 542. (Alt/yrs)

Chem **584 Nucleic Acids** (3 cr). Structure, function, and metabolism of nucleic acids. Prereq: perm. (Alt/yrs)

Chem **589 Advanced Topics in Molecular Biology, Microbiology and Biochemistry** (1-9 cr, max 9). See MMBB 589.

Chem **590 Doctoral Research Proposal** (1 cr). Taken no later than one semester after completion of cumulative exams; required for advancement to Ph.D. candidacy. Includes review of relevant literature and original research proposal describing the student's intended research project.

Chem **600 Doctoral Research and Dissertation** (cr arr).

Civil Engineering

James H. Milligan, Chair, Dept. of Civil Engineering (104 Buchanan Engr. Lab. 83844-1022; phone 208/885-6782).

CE **115 Introduction to Civil Engineering** (2 cr). Graded P/F. Introduction to engineering design process and analysis techniques including problem solving skills, development of software use skills, graphical analysis, data analysis, economic decision making, documentation skills, and use of structured programming concepts in designing personal applications. Prereq: major in civil engineering.

CE **200** (s) **Seminar** (cr arr). Prereq: perm.

CE **203** (s) **Workshop** (cr arr). Prereq: perm.

CE **204** (s) **Special Topics** (cr arr). Prereq: perm.

CE **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

CE **211 Engineering Measurements** (3-4 cr). For engineering and cartography students. Theory and practice; types and distribution of errors; manipulation of instruments; route and land surveying; construction survey; intro to photogrammetry. Two lec and one 3-hr lab a wk; additional 1-hr recitation a wk for 4 cr reqd unless waived by exam. Prereq: Math 143 or 170 or 175 and Engr 105.

CE **215 Civil Engineering Analysis and Design** (2 cr). Application of modern basic science, mathematics, and fundamental engineering principles to solution of civil engineering design problems by analytic and numeric methods; use of structured programming concepts in designing applications Prereq: CE 115, Engr 105, Phys 211, Math 170.

CE **218 Elementary Surveying** (2 cr). Primarily for nonengineering students. Theory of measurements and manipulation of surveying instruments; application of surveying methods to construction; topographic and land surveys. One lec and one 3-hr lab a wk. Prereq: Math 143.

CE **299** (s) **Directed Study** (cr arr). Prereq: perm.

CE **316 Advanced and Route Surveys** (3 cr). Advanced survey methods including state plan coordinate systems, practical astronomy, and route surveys; field layout to include meridian determination, circular curves, spirals, setting slope and grade stakes, bridge and culvert surveys. Two lec and one 3-hr lab a wk. Prereq: CE 211. (Alt/yrs)

CE **317 Land Surveying** (2 cr). History and development; related laws; preparation and filing of property descriptions and plats; subdivision planning; methods for property surveys. Prereq: CE 211. (Alt/yrs)

CE **321 Hydrology** (3 cr). See AgE 351.

CE **322 Hydraulics** (3 cr). Applied principles of fluid mechanics; closed conduit flow, hydraulic machinery, open channel flow; design of hydraulic systems. Prereq: Engr 335.

CE **323 Hydraulics Laboratory** (1 cr). Laboratory exercises on closed conduit flow, hydraulic machinery, open channel flow and mixing process. Ten 1-hr lec, 7 unsupervised lab sessions with hours varying from 2 to 4 hrs each. Prereq or coreq: CE 322.

CE **330 Fundamentals of Environmental Engineering** (3 cr). Introduction to key concepts of environmental engineering, including ecological, chemical, and microbiological processes; types and effects of pollutants; treatment of water, wastewater, sludges, and solid waste; control of air, noise, and agricultural pollution. Two lec and one 2-hr lab a wk. Prereq: junior standing in engineering.

CE **342 Theory of Structures** (3 cr). Stresses and strains in statically determinate and indeterminate beam, truss, and rigid frame structures; effects of moving loads; matrix displacement method. Two lec and one 3-hr lab a wk. Prereq: Engr 350.

CE **357 Properties of Construction Materials** (3 cr). Principles of construction materials, composition and behavior, test methods, interpretations, and report writing; materials covered are aggregates, cements, concretes, metals, wood, and polymers. Two lec, two hrs of lab, and 1 hr of recitation a wk. Prereq: Engr 350; coreq: Stat 301.

CE **360 Fundamentals of Geotechnical Engineering** (4 cr). Soil composition, descriptions, and classification systems; permeability and seepage; capillarity and suction; total, effective, and neutral stresses, compression and volume changes; shear strength; compaction. Two lec, 2 hrs of lab, and 1 hr of recitation a wk. Prereq: Engr 335 and 350.

CE **372 Fundamentals of Transportation Engineering** (4 cr). Intro to planning, design, and operation of highway and traffic, public transportation, and airport systems. Three lec and one 3-hr lab a wk; periodic field data collection and one or two field trips. Prereq: Stat 301; coreq: Engl 317.

CE **400** (s) **Seminar** (cr arr). Prereq: perm.

CE **402 Applied Numerical Methods for Engineers** (3 cr). Approximate and numerical methods for solution of systems of linear and nonlinear equations, initial value, boundary value, and partial differential equations with practical applications, analysis of error, improvement of accuracy, and numerical and matrix techniques for computation by digital computer. Prereq: Math 310, a high level programming language.

CE **403** (s) **Workshop** (cr arr). Prereq: perm.

CE **404** (s) **Special Topics** (cr arr). Prereq: perm.

CE **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

CE **411 Engineering Fundamentals** (0 cr). Review of basic engineering and science material covered in Fundamentals of Engineering exam. Graded P/F. Prereq: sr standing or perm.

CE **J420/J520 Fluid Dynamics** (3 cr). See ME J420/J520.

CE **421 Engineering Hydrology** (3 cr). See AgE 451.

CE **ID&WS-J422/ID-J522 Hydraulic Design** (3 cr). WSU C E 450. Hydraulic design of open channel and closed conduit conveyance structures, control structures, protective structures and systems; project oriented problems. Extra design projects or different design projects for grad cr. One field trip. Prereq: CE 322 or equiv, Engr 360, or perm.

CE **428 Open Channel Hydraulics** (3 cr). See AgE 458.

CE **431 Design of Water and Wastewater Systems I** (3 cr). Application of basic engineering science to treatment of domestic and industrial water supplies; treatment and disposal of domestic sewage and industrial wastes. Two lec and one 3-hr lab a wk. Prereq: CE 322, 330, Engr 335, or perm.

CE **ID&WS-J432/ID&WS-J532 Design of Water and Wastewater Systems II** (3 cr). WSU C E 544. CE 532 same as EnvE 532. Application of unit operations and processes to design of integrated wastewater treatment systems; critical analysis of existing designs. Additional projects/assignments reqd for grad cr. Prereq: CE 431.

CE **J433/J533 Water Quality Management** (3 cr). CE 533 same as EnvE 543. Physical, chemical, and biological techniques for analysis of water quality management problems; development of design criteria for corrective systems. Additional projects/assignments reqd for grad cr. Two lec and one 3-hr lab a wk. Prereq: perm.

CE **WS435 Hazardous Waste Engineering** (3 cr). WSU C E 418. Same as EnvE 435.

CE **441 Reinforced Concrete Design** (3 cr). Strength design method in accordance with latest ACI code. Two lec and one 2-hr lab a wk. Prereq: CE 342.

CE **WS442 Prestressed Concrete Design** (3 cr). WSU C E 434/534.

CE **WS443 Design of Timber Structures** (3 cr). WSU C E 436.

CE **444 Steel Design** (3 cr). Structural steel design using latest AISC specifications. Two lec and one 2-hr lab a wk. Prereq: CE 342.

CE **ID&WS-J445/ID&WS-J545 Matrix Structural Analysis** (3 cr). WSU C E 531. Formulation of the analysis of trusses, beams, and frames using the stiffness method of matrix structural analysis; development of element properties, coordinate transformations, and global analysis theory; special topics such as initial loads, member and joint constraints, modification procedures. Special project demonstrating mature understanding of materials reqd for grad cr. Prereq: CE 342 or perm.

CE **460 Geotechnical Engineering Design** (3 cr). Applications of soil mechanics in design of earth retaining structures, shallow and deep foundations, embankments, slopes, and excavations. Prereq: CE 360.

CE **WS461 Foundations** (3 cr). WSU C E 435.

CE **473 Highway Design** (3 cr). Planning, geometrics, location, and design of urban and rural highway systems. Two lec and one 3-hr lab a wk. Prereq: CE 372, CE 360 or perm.

CE **ID474 Traffic Systems Design** (3 cr). WSU C E 474. Analysis and design of network traffic systems; system evaluation using computer optimization and simulation; development and testing of alternative system design. Two lec and one 3-hr lab a wk; field data collection and field site visits. Prereq: CE 372 or perm.

CE **ID&WS-J475/ID&WS-J575 Pavement Design and Evaluation** (3 cr). WSU C E 473. Pavement design processes; materials selection and characterization methods; design of flexible pavements; design of rigid concrete pavements; AASHTO design guide; performance evaluation of existing pavements; condition survey and ratings; distress evaluation; introduction to maintenance and rehabilitation techniques; computer applications. Additional 1-hr meeting and additional projects/assignments reqd for grad cr. Prereq: CE 357; Engl 317 or equiv or perm.

CE **482 Project Engineering** (3 cr). Modern project engineering techniques for planning, scheduling, and controlling typical engineering and construction projects; linear programming and other optimization techniques as applied to resource allocation; microcomputer applications are emphasized and appropriate software used throughout the course. Prereq: Stat 251 or 301 or equiv and senior standing or perm.

CE **ID484 Engineering Law and Contracts** (2 cr). WSU C E 462. Contract law and application to engineering services agreements and construction contracts; specifications, agency, torts, professional liability, and alternate dispute resolution. Prereq: sr standing in engineering.

CE **491 Civil Engineering Professional Seminar** (1 cr). Employment and technical topics; preparation and presentation of professional paper. Course to be taken in last semester before graduation. Graded P/F. Prereq: senior standing in civil engineering.

CE **492 Professional Society Project** (1 cr, max 2). May be used as a technical elective by CE majors. Active participation in a student project sponsored by one of the professional engineering societies; students schedule, manage, and complete the project, make written and oral presentations, and present the project results to the sponsoring professional engineering society. Prereq: junior standing in CE and perm.

CE **499** (s) **Directed Study** (cr arr). Prereq: perm.

CE **500 Master's Research and Thesis** (cr arr).

CE **501** (s) **Seminar** (cr arr). Conferences and reports on current developments.

CE **502** (s) **Directed Study** (cr arr). Prereq: perm.

CE **503** (s) **Workshop** (cr arr). Prereq: perm.

CE **504** (s) **Special Topics** (cr arr). Prereq: perm.

CE **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

CE **ID&WS510 Advanced Mechanics of Materials** (3 cr). See ME 539.

CE **519 Fluid Transients** (3 cr). Same as ME 519. Development of concepts and modeling techniques for unsteady flow of liquid and gas in piping systems; extensive computer programming used to develop tools for analysis, design, and control of transients. Prereq; Math 310, Engr 335. (Alt/yrs)

CE **520 Fluid Dynamics** (3 cr). See ME J420/J520.

CE **521 Sedimentation Engineering** (3 cr). Intro to river morphology and channel responses; fluvial processes of erosion, entrainment, transportation, and deposition of sediment. Prereq: CE 428 or perm.

CE **ID522 Hydraulic Design** (3 cr). See CE J422/J522.

CE **ID&WS523 Water Resources Systems** (3 cr). WSU C E 561. Concepts in water development; coordination of development of other natural resources; systems approach and optimization techniques. Prereq: perm.

CE **ID&WS524 Water Resources Planning** (3 cr). WSU C E 562. Use of water resources; provision for domestic water supply, power, flood control, navigation, irrigation, and recreation; design and feasibility problems; guest lecturers. Prereq: perm.

CE **528 Stochastic Hydrology** (3 cr). Analyses and evaluation of hydrologic data and time series; application of stochastic models to data generation and record extension (daily and storm precipitation, monthly and annual streamflows); regression and autoregression analyses; extensive computer applications for data analysis and synthesis. Prereq: CE 321, introductory statistics course.

CE **529 Natural Channel Flow** (3 cr). See AgE 555.

CE **ID&WS531 Environmental Engineering Unit Operations** (3 cr). WSU C E 541. Same as EnvE 531. Analysis and design of physical and chemical operations of water and waste treatment; flow models, sedimentation, flocculation, filtration, and water conditioning. Prereq: perm.

CE **ID&WS532 Design of Water and Wastewater Systems II** (3 cr). See CE J432/J532.

CE **533 Water Quality Management Techniques** (3 cr). See CE J433/J533.

CE **ID&WS534 Environmental Engineering Unit Processes** (3 cr). WSU C E 542. Same as EnvE 534. Aeration system design, biological oxidations, growth kinetics, process design of suspended growth and fixed film aerobic and anaerobic systems, biological nutrient removal, land treatment systems. Prereq: CE 431 or perm.

CE **WS537 Aquatic Systems Restoration** (2-3 cr). WSU C E 585.

CE **540 Continuum Mechanics** (3 cr). See ME 540.

CE **ID&WS541 Reliability of Engineering Systems** (3 cr). WSU C E 531. Same as ME 583. Fundamentals of reliability theory, system reliability analysis including common-mode failures and fault tree and event tree analysis, time-dependent reliability including testing and maintenance, propagation of uncertainty, human reliability analysis, practical applications in component and system design throughout the semester. Prereq: perm.

CE **ID542 Advanced Design of Structures** (3 cr). WSU C E 537. Composite action, hybrid sections, plate girders, curved girders, fatigue design, splices and connections, loads, load combinations, load distribution, computer modeling and analysis. One 1-day field trip. Prereq: CE 444 or perm.

CE **ID&WS543 Dynamics of Structures** (3 cr). WSU C E 512. Behavior of structures under impact, impulse, and seismic loads. Prereq: CE 441, 444, Math 310. (Alt/yrs)

CE **ID&WS545 Matrix Structural Analysis** (3 cr). See CE J445/J545.

CE **ID&WS546 Finite Element Analysis** (3 cr). Same as ME 549. WSU C E 532. Formulation of theory from basic consideration of mechanics; applications to structural engineering, solid mechanics, soil and rock mechanics; fluid flow. Prereq: ME 341 or CE 342.

CE **WS547 Advanced Reinforced Concrete Design** (3 cr). WSU C E 533.

CE **548 Elasticity** (3 cr). See ME 548.

CE **WS551** (s) **Industrial Waste Problems** (3 cr). WSU C E 545.

CE **WS552 Air Pollution Abatement and Administration** (2 cr). WSU C E 573.

CE **WS553 Engineering Aspects of Environmental Chemistry** (2-4 cr). WSU C E 583.

CE **556 Properties of Pavement Materials** (3 cr). Design of asphalt and portland cement concrete mixes; physical and mechanical properties; characterization methods; effects of aggregate and binder constituents; modification and upgrading techniques; laboratory and in-situ evaluation methods; applications of highway and airport materials. Three 1-hr lec a wk and variable number of lab hrs for demonstration. Prereq: CE 357 or equiv or perm.

CE **557 Mechanical Properties of Elastic and Nonelastic Materials** (3 cr). Procedures for determining stress, strain, and modulus of materials used in construction, and for evaluating their performance with changes of time and frequency, temperature, and moisture under various modes of loading.

CE **ID561 Engineering Properties of Soils** (3 cr). WSU C E 527. Strength, compressibility, volume stability, and permeability of saturated and unsaturated soils, laboratory and field methods of measurement, relations of physical and engineering properties. Prereq: CE 360.

CE **ID562 Advanced Foundation Engineering** (3 cr). WSU C E 528. Consolidation theories, stress and strain distribution, bearing capacity and settlements of shallow and deep foundations, pile group behavior, theory of subgrade reaction, mat foundations, laterally loaded piles. Prereq: CE 360 or perm.

CE **563 Seepage and Earth Dams** (3 cr). See GeoE 535.

CE **ID565 Soil Dynamics** (3 cr). WSU C E 529. Theory of foundation response to dynamic loads, design and analysis of machine foundations, foundation isolation, behavior of soils subjected to dynamic loads, field and laboratory methods for evaluation of dynamic properties, liquefaction, wave equation, analysis of piles.

CE **566 Earthquake Engineering** (3 cr). Review of geological and seismological factors that influence design; seismic wave propagation; earthquake parameters; probabilistic hazard assessment; dynamic soil properties; response spectra; computer applications; earthquake resistant designs. Prereq: CE 360 or equiv, or perm.

CE **WS567 Soil and Site Improvement** (3 cr). WSU C E 425/525.

CE **ID&WS571 Traffic Flow Theory** (3 cr). WSU C E 501. Introduction to elements of traffic flow theory including principles of traffic stream characteristics, capacity, queueing theory, and shock waves; application of traffic flow theory to freeway and arterial traffic flow problems. Prereq: perm. (Alt/yrs)

CE **ID&WS572 Applied Traffic Operations** (3 cr). WSU C E 501. Application of traffic simulation models to the design and operations of traffic facilities, including intersection, arterials, and freeways; assessment of traffic signal timing strategies and freeway management and control strategies. Prereq: perm. (Alt/yrs)

CE **ID&WS573 Transportation Planning** (3 cr). WSU C E 501. Concepts and methods of transportation planning, including network modeling, travel demand forecasting, and systems evaluation of multi-modal transportation systems. Prereq: perm. (Alt/yrs)

CE **ID&WS574 Public Transportation** (3 cr). WSU C E 501. Concepts and principles of planning and operations of public transportation systems, including bus transit, rail transit, and paratransit modes. Prereq: perm. (Alt/yrs)

CE **ID&WS575 Pavement Design and Evaluation** (3 cr). See CE J475/J575.

CE **577 Pavement Management and Rehabilitation** (3 cr). Overview of Pavement Management Systems; PMS project and network levels; serviceability concepts and performance models; PMS data needs; rehabilitation and maintenance strategies; life cycle cost analysis; implementation of PMS in design, construction, maintenance, and research; examples of working PMS; maintenance and rehabilitation of asphalt and concrete pavements. Prereq: CE J475/J575 or equiv or perm.

CE **589 Water Resources Seminar** (1 cr). See Intr 589.

CE **597** (s) **Practicum** (cr arr). Prereq: perm.

CE **598** (s) **Internship** (cr arr). Prereq: perm.

CE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

CE **600 Doctoral Research and Dissertation** (cr arr).

Communication

Roy Alden Atwood, Director, School of Communication (201 Shoup Hall 83844-1072; phone 208/885-6458).

Note: See School of Communication requirements in part 5 for eligibility requirements for registration in upper-division courses.

Comm **101 Fundamentals of Public Speaking** (2 cr) (ComG 101). May be used as core credit in J-3-a. Skills and techniques of effective speaking.

Comm **111 Introduction to Communication Studies** (3 cr) (ComG 111). Introduction to historical and intellectual development of the primary subfields within communication; perspectives on interrelationships among the subfields of interpersonal, small group, visual, organizational, and mass communication; exploration of institutional character and cultural implications of each subfield; build competence as critical consumers of communication content.

Comm **121 Media Writing** (3 cr). Basic principles of writing news. Two 2-hr lec-labs a wk. Prereq: Engl 102 and ability to type.

Comm **132 Oral Interpretation** (2 cr) (ComG 132). Use of voice and body to communicate the intellectual and emotional meaning of literature.

Comm **134 Nonverbal Communication** (2 cr) (ComG 134). Study of body language; proxemics, kinesics, and other nonverbal codes.

Comm **200** (s) **Seminar** (cr arr). Prereq: perm.

Comm **203** (s) **Workshop** (cr arr). May be graded P/F. Prereq: perm.

Comm **204** (s) **Special Topics** (cr arr). Prereq: perm.

Comm **222 Reporting** (3 cr). Types and sources of news; gathering and writing news. Two lec and one lab a wk. Prereq: Comm 121.

Comm **233 Interpersonal Communication** (3 cr) (ComG 233). Communication concepts and skills applied to relationship management; communication process, listening, self-disclosure, perception, conflict.

Comm **235 Organizational Communication** (3 cr) (ComG 235). Philosophy, methods, and designs for studying communication system of a complex organization.

Comm **252 Principles of Public Relations** (3 cr). Understanding public relations programs, functions and techniques; projects related to student's interest. Prereq: Comm 121.

Comm **265 Advertising and Society** (3 cr) (C). Survey of role of advertising in American society including effects on consumers; regulation, media, and advertising as a creative process.

Comm **270 Broadcast Commercial Writing/Production** (3 cr). Basic principles of writing and production of commercials in broadcast, with emphasis on radio production/announcing and writing techniques for all electronic media. Prereq: Comm 121.

Comm **275 Introduction to Video Production** (3 cr). Introduction to art and craft of video production; emphasis on aesthetics of visual image and process of video production; work with 1/2" video equipment for field assignments; learn how TV programs are produced in the studio by working at the KUID-TV studio during labs. Two lec and 3 hrs of lab a wk.

Comm **276 Intermediate Video Production** (3 cr). Continuation of Comm 275; involves students in more professional-level work with more emphasis on details of writing, lighting, computerized editing, and packaging the video product; work with 3/4" SP field packages; producing news packages, magazine features, and music videos. Two lec and 3 hrs of lab a wk; field trips. Prereq: Comm 275.

Comm **277 Introduction to Non-linear Video Editing** (3 cr). Using the latest digital video technology to edit video projects; a series of tutorials will introduce students to specific terms and techniques of non-linear video editing; several video editing projects will test students' knowledge base and challenge their creativity utilizing this new technology. One lec and 3 hrs of lab a week.

Comm **281 Understanding Photography** (3 cr). Basic skills of camera operation; emphasis on image design and creative techniques; lec topics include exposure, lenses, composition, filters, and films. 35mm adjustable camera required, plus additional costs for photographic materials. Two lec and one 3-hr recitation a wk.

Comm **284 Experiences in Visual Thinking** (3 cr) (ComG 284). Expansion and strengthening of creative potential through right brain thinking experiences: seeing, drawing, and imagining; solution of creative problems by applying learned principles and visual thinking strategies.

Comm **288 Introduction to Film Studies** (3 cr) (ComG 288). Introduction to the study of film; survey of film aesthetics, form, theory, style, systems, and analysis; a foundation course for upper-division film courses—no previous film or photography experience required. Two lec, one discussion period, and one film showing period a wk.

Comm **299** (s) **Directed Study** (cr arr). Prereq: perm.

Comm **323 Public Affairs Reporting** (3 cr). Problems and practice in reporting the courts, government, politics, other public issues. Prereq: Comm 121, 222, or perm.

Comm **331 Conflict Management** (3 cr) (ComG 331). Principles of effective conflict management in various settings; emphasis on styles of conflict, power, goals, strategies, and intervention techniques.

Comm **332 Communication and the Small Group** (3 cr) (ComG 332). Problem-solving methods; performing as a group leader or as a group member; small group behavior.

Comm **333 Interviewing** (3 cr) (ComG 333). Prin of information gathering and problem solving in interviews.

Comm **347 Persuasion** (3 cr) (ComG 347). Theory and practice of effective persuasive techniques. Prereq: Comm 101.

Comm **354 Publications Editing** (3 cr). Design and production of magazines, periodicals, brochures.

Comm **360 Broadcast Media Advertising** (3 cr). Advertising creative process in radio and television, including copywriting, and production processes and techniques. Prereq: Comm 265.

Comm **362 Print Media Advertising** (3 cr). Advertising creative process in print media (newspapers, magazines, direct mail, outdoor, etc.), including copywriting, typesetting, layout, design, and production processes and techniques. Prereq: Comm 265.

Comm **364 Advertising Media Planning** (3 cr) (C). Advertising media planning for all media, both broadcast and print; includes interpretation of ratings and market data, media strategies and concepts, and specific buying process in each advertising medium. Prereq: Comm 265.

Comm **374 Broadcast Newswriting and Reporting** (3 cr). Techniques of gathering, writing, and producing news for radio and television. One lec and one lab a wk.

Comm **375 Video Program Production** (2 cr, max 4). Development, planning, budgeting, and execution of television productions; development of professional techniques. Field trips. Prereq: Comm 374.

Comm **381 Photographic Materials and Techniques** (3 cr). Basic to intermediate level black and white lab course; film developing, printing; exploration of various films, developers, toners, and photo techniques; group critiques. Two lec and two 3-hr labs a wk. Prereq: Comm 281 or perm.

Comm **382 History of Photography** (3 cr) (ComG 382). History and development of photography in its various forms; photography as a creative art form and a reflection of society; selected slide lecs. Prereq: Comm 281 or perm.

Comm **384 History of American Film** (3 cr) (ComG 384). History and development of U.S. film industry; film as an art form; film as a reflection of society; selected genres and directors. Three lec and 3 hrs of lab a wk. Prereq: Comm 288, or Intr 126, or perm.

Comm **385 Color Photography** (3 cr). Entry-level color lab course; discussion and practice in color theory; exploration of all conventional color processes, slides, negatives, and prints. Two lec and two 3-hr labs a wk. Prereq: Comm 281 or perm.

Comm **386 Documentary Film/Television** (3 cr) (ComG 386). Open to all students. Development of nonfiction film, TV, photography; documentary style and form; documentary's power to communicate; issues raised by documentary; noted practitioners and theorists of documentary. Includes one evening film screening a wk.

Comm **387 Digital Imaging** (3 cr). Computer imaging with emphasis on visual problem solving and design; development of professional techniques with industry standard software. Four hrs of lec/lab and discussion a wk.

Comm **400** (s) **Seminar** (cr arr). Prereq: perm.

Comm **401** (s) **Practicum in Communication** (1 cr, max 2). Graded P/F. Prereq: perm.

Comm **403** (s) **Workshop** (cr arr). May be graded P/F. Prereq: perm.

Comm **404** (s) **Special Topics** (cr arr). Prereq: perm.

Comm **422 Science Communication** (3 cr). Methods of reporting on science and technology; the rhetoric of communication about science in the mass media. Prereq: Comm 222 and 7 credits in lab science, or perm. (Alt/yrs)

Comm **424 News Editing** (3 cr). News selection, evaluation, editing, and display. Two lec and one lab a wk. Prereq: Comm 121, 222, or perm.

Comm **425 Feature Article Writing** (3 cr). Writing human interest stories, editorials, reviews, and columns. Prereq: Comm 121 or perm.

Comm **430 Perspectives in Film** (3 cr) (ComG 43). See Engl 430.

Comm **431 Professional Presentation Techniques** (3 cr). Multimedia presentation of proposals, management plans, feasibility reports, instructions, and scientific papers; designed to assist students in professional fields in making presentations to professional and lay audiences.

Comm **432 Gender and Communication** (3 cr) (ComG 432). The nature of interpersonal communication and gender; identification, interpretation, and analyses of theories that offer explanations of gender and culture in interpersonal interactions. Prereq: Comm 233 or perm. (Alt/yrs)

Comm **433 Organizational Communication Theory and Research** (3 cr) (ComG 433). Overview of current theory and research in organizational communication; interpretive and critical perspectives on organizational culture, organizational change, organization and environment relationships, management systems, and power relationships.

Comm **441 Ethics in Mass Communication** (3 cr). Examination of ethical responsibilities and obligations of people working in the mass media.

Comm **443 Media Management** (3 cr). Management principles as they apply to electronic and print media; emphasis on personnel management, budgeting, programming, sales, marketing and promotion, legal constraints, new technologies, and strategic planning.

Comm **444 Communication and Public Opinion** (3 cr). Role of communication in the formation of public opinion with special emphasis on mass media.

Comm **445 History of Mass Communication** (3 cr). Growth and development of mass media in the U.S.

Comm **448 Law of Mass Communication** (3 cr). Freedom of the press, libel, right to know, privacy, contempt in print and broadcast media.

Comm **449 Theory in Communication** (3 cr). Interdisciplinary approach to understanding the process of communication.

Comm **450 Quantitative Research Methods** (3 cr). Design of experiments and field studies and planning of polls relevant to communication, with special attention to causality, reliability, and validity, and emphasis on interpretation of results.

Comm **451 Qualitative Research Methods** (3 cr). Aims and methods of qualitative research; emphasis on philosophical assumptions, research design, data collection, reliability/validity issues, and data analysis within the context of interpretive, critical and naturalistic approaches to communication research and practice.

Comm **452 Public Relations Campaign Design** (3 cr). Examination of public relations programs; practice in developing and executing campaigns with emphasis on problem/issue identification, design of campaign elements, presentations skills and equipment. Prereq: Comm 252.

Comm **458 Public Relations Case Studies and Issues Management** (3 cr). Examination of actual and created public relations case studies; reasons for their success or failure examined and evaluated. Prereq: Comm 452.

Comm **466 Advertising Campaign Strategy** (3 cr). Advanced advertising strategies in creative approaches and media usage; current ad campaigns and development of a complete advertising campaign for a client. Prereq: Comm 360, 362, 364, 431, and Art 121 or 225.

Comm **468 The Advertising Agency** (3 cr). Functioning of an advertising agency, including management, accounting, creative and media buying systems, government regulation, account management, and creative strategies in the marketplace. Field trips. Prereq: Comm 466 or perm.

Comm **475 Advanced Video Production** (3 cr). Basic production theory, lighting, composition, sound; producing and directing; practice in a variety of television production forms. Field trips. Prereq: Comm 275.

Comm **476 Advanced Broadcast News Writing/Production** (3 cr). Advanced techniques in writing and production of news for radio and television. One lec and one lab a wk. Prereq: Comm 374.

Comm **481 Advanced Photography** (3 cr). Advanced-level lab course; covers basic lighting, portraits, studio, journalism; group critiques. Two lec and two 3-hr labs a wk. Prereq: Comm 381 and 385.

Comm **489 Critical Issues in Visual Communication** (3 cr). Examination of major theoretical approaches to visual media (photography, film, and television); impact of visual images on society; communicative and aesthetic functions of visual images; ethical concerns and visual media.

Comm **490 International Communication** (3 cr). Analysis of channels and media for international communication; interpersonal interaction and cross-cultural mass media.

Comm **498** (s) **Internship** (0-3 cr, max 3). Supervised experience in professional communication. Graded P/F. Prereq: perm of director, School of Communication.

Comm **499** (s) **Directed Study** (cr arr). Prereq: perm.

Computer Engineering

David P. Egolf, Chair, Dept. of Electrical and Computer Engineering (214 Buchanan Engr. Lab. 83844-1023; phone 208/885-6554).

CoE **243 Digital Logic** (3 cr). See EE 243.

CoE **244 Logic Circuit Lab** (1 cr). See EE 244.

CoE **245 Computer Organization and Architecture** (4 cr). See CS 245.

CoE **341 Digital Systems Engineering** (3 cr). See EE 440.

CoE **361 Microcontrollers** (4 cr). See EE 443.

CoE **J413/513 Concurrent Systems** (3 cr). See CS J413/J513.

CoE **J420/J520 Data Communication Systems** (3 cr). See CS J420/J520.

CoE **421 Data Communication Lab** (1 cr). See CS 421.

CoE **445 Introduction to VLSI Design** (3 cr). See EE 445.

CoE **480-481 Computer Systems Design Projects** (3 cr). Application of formal software and hardware design techniques, hardware/software interface considerations, project management, economics, reliability, and patents; projects require a combination of hardware and software system design, working model, and oral and written report. Two lec a wk; significant lab work reqd. Prereq for CoE 480: EE 316, 317; CoE 341; senior standing in computer engineering; or perm. Prereq for CoE 481: EE 350, CoE 480, and CS 381, or perm.

CoE **500 Master's Research and Thesis** (cr arr). Prereq: perm.

CoE **513 Concurrent Systems** (3 cr). See CS J413/J513.

CoE **520 Data Communication Systems** (3 cr). See CS J420/J520.

CoE **548 Supercomputing** (3 cr). See EE 548.

Computer Science

Paul W. Oman, Chair, Dept. of Computer Science (B40 Janssen Engr. Bldg. 83844-1010; phone 208/885-6589).

CS **101 Introduction to Computer Science** (3 cr). May be used as core credit in J-3-c. Survey of computer science and topics of importance to computer scientists; includes topics such as the nature of problems, unsolvability, hardware, human factors, security, social, ethical, and legal issues; exposure to practical aspects of computer networks. Prereq: two years of high school algebra.

CS **102 Computer Science Orientation** (1 cr). Graded P/F. Introduction to the computer science profession and curriculum; fields of study available; curriculum planning; academic and professional ethics; introduction to available computing platforms and practice using them.

CS **112 Introduction to Problem Solving and Programming** (3 cr). May be used as core credit in J-3-c. Intro to fundamental problem solving techniques using the computer; use of a programming language, structured programming concepts; use of fundamental data types, including arrays and structures; basic concepts of computer organization, editing, and program execution; programming lab in which the student solves problems using C++. Prereq: Math 107 or sufficiently high ACT, SAT, or Math Placement Test score to qualify for Math 143.

CS **113 Program Design and Algorithms** (3 cr). Further problem-solving and design methods used in computer science; problem definition and analysis; preliminary design methods, module analysis and refinement methods, cohesion, coupling, top down design; internal and external program documentation; intro to algorithm analysis, cost and complexity concepts; discussion and comparison of several well-known algorithms for searching, sorting, text, and numeric processing. Lab work reqd. Prereq: CS 112 or equiv.

CS **127** (s) **Programming Language** (1-3 cr, max arr). Introduction to computer programming in a selected language. Prereq: perm.

CS **204** (s) **Special Topics** (cr arr). Prereq: perm.

CS **213 Data Structures** (3 cr). Intro to abstract data types, linear lists, linked lists, stacks, queues, graphs, and trees; methods for implementing, and algorithms for manipulating these types; dynamic memory methods; additional searching and sorting algorithms that result from using these data types; sequential file processing; application of these concepts in the lab to provide further experience in the program design process. Prereq: CS 113 and Math 176.

CS **214 Background Study in Data Structures** (1 cr). Not applicable toward any UI undergraduate degree; valid only for removal of CS 213 deficiency for graduate students who do not have B.S.C.S. See CS 213 for course description. Graded P/F based on comprehensive examination at completion of course.

CS **245 Computer Organization and Architecture** (4 cr). Same as CoE 245. Register and processor level design of computer systems including the ALU and control unit; assemblers, linkage editors, loaders; evolution and classification of computer architectures; memory hierarchy, I/O interfaces; techniques for analyzing system performance. Prereq: CS 113 and CoE 243.

CS **299** (s) **Directed Study** (cr arr). Prereq: perm.

CS **307 History of Calculating and Computing** (3 cr). Open to all students. Exploration of numerical problems that created demands for better calculating devices, from the abacus to the supercomputer. Prereq: CS 101 or 112 and upper-division standing.

CS **310 Computing Languages** (3 cr). Major features of good programming languages, with primary emphasis on language features and their role in writing good software; programming language design alternatives; various types of languages, including procedure, data-flow, functional, and object-oriented languages. Prereq: CS 213.

CS **ID&WS324 Computer Graphics** (3 cr). WSU Cpt S 442. Use of the computer to define, store, manipulate, and display 2-D and 3-D objects; 2-D curvefitting and 3-D surface development. Prereq: CS 112 and Math 160 or 170 and trig or perm.

CS **341 Computer Operating Systems** (4 cr). Analysis and design of methods used by operating systems to perform typical system services; design and implementation of file and directory systems; I/O methods, including programmed, interrupt-driven, and DMA; CPU scheduling; memory management techniques and implementations; concurrent programming; deadlocks; protection mechanisms; distributed systems; lab component focuses on implementation of several designs and algorithms discussed in lec. Three lec and one lab a wk. Prereq: CS 213 and 245.

CS **360 Database Systems** (3 cr). Study of database design and implementation; comparison of basic models (entity-relationship, hierarchical, network, relational); study of query languages; discussion of issues of integrity, security, dependencies, and normal forms. Prereq: CS 213 or perm.

CS **371 Expert Systems** (3 cr). Theory and practice of knowledge engineering; knowledge acquisition, representation, coding, testing; individual project reqd.

CS **381 Software Engineering** (3 cr). Current topics in development of software systems; software life cycle model, requirements definition, design, verification and validation, and project management techniques. Prereq: perm.

CS **386 Derivational Programming** (3 cr). Introduction of a practical approach based on methodically developing programs from their specifications; focus on developing reliable programs with attention to real issues. Prereq: CS 213.

CS **398** (s) **Computer Science Cooperative Internship** (1-3 cr, max 3). Supervised internship in professional computer science settings, integrating academic study with work experience; requires formal plan of activities before co-op assignment and final written report evaluated by on-campus faculty members. Graded P/F. Prereq: perm.

CS **401 Contemporary Issues in Computer Science** (1 cr). Ethical, legal, and intellectual property issues; current research topics; and other issues of importance to the professional computer scientist. Graded P/F. Prereq: sr standing in CS.

CS **404** (s) **Special Topics** (cr arr). Prereq: perm.

CS **J413/J513 Concurrent Systems** (3 cr). Same as CoE J413/J513. Issues of parallel computer architecture considering a hardware/software approach; topics include convergence of parallel architectures, fundamental design issues, parallel programs, programming for performance, workload-driven evaluation, shared memory multiprocessors, snoopy-based multiprocessor design, scalable multiprocessors, cache coherence, hardware software tradeoffs, interconnection network design, latency tolerance, and future directions of concurrent systems. Prereq: CS 341.

CS **414 Object-Oriented Design** (3 cr). Concepts and techniques used in object-oriented design (OOD) and object-oriented programming (OOP); current topics in OO discussed; concepts illustrated with the design and implementation of both individual and group projects. Prereq: CS 341 or 310.

CS **J420/J520 Data Communication Systems** (3 cr). Same as CoE J420/J520. Concept and terminology of data communications, equipment, protocols (including ISO/OSI and TCP/IP), architectures; transmission alternatives, regulatory issues and network management. Additional projects/assignments reqd for grad cr. See CS 421 for optional lab course.

CS **421 Data Communication Lab** (1 cr). Same as CoE 421. Hands-on experience with data communication systems using workstations and protocol analyzers; analysis of protocols, network diagnostics, and network system management. Graded P/F. Coreq: CS 420 or equiv.

CS **ID-J423/J523 Network Security** (3 cr). WSU Cpt S 425. Practical topics in network security; policy and mechanism, malicious code; intrusion detection, prevention, response; cryptographic techniques for privacy and integrity; emphasis on tradeoffs between risk of misuse, cost of prevention, and societal issues; concepts implemented in programming assignments. Additional projects/assignments reqd for grad cr. Prereq: CS 341, knowledge of C or C++.

CS **J435/J535 Foundations of Modern Programming Methods** (3 cr). The seminal papers in computer science that form the foundation of today's programming methodology; detail analysis of papers on theory of programming, design techniques, coding considerations, and new methods like visual programming and object-oriented design; major influences on how and why we build programs today. Additional projects/assignments reqd for grad cr. Prereq: junior standing, CS 213, CS 245, knowledge of at least two other programming languages.

CS **J442/J542 Computer Security Concepts** (3 cr). Cryptographic systems, coding and decoding of messages; network, database, and operating system security issues, capability and access-control mechanisms; current trends and research in mandatory and discretionary security policies. Additional projects/assignments reqd for grad cr. Prereq: CS 341, Stat 301.

CS **ID&WS445 Systems Program Design** (4 cr). WSU Cpt S 452. Algorithms used by the following system software: assemblers, macro-processors, interpreters, and compilers; compiler design options and code optimization; all concepts implemented in major programming assignments. Prereq: CS 245, 310.

CS **J449/J549 Fault-Tolerant Systems** (3 cr). Same as EE J449/J549. Design, modeling, analysis and integration of hardware and software to achieve dependable computing systems employing on-line fault tolerance; theory and fundamental concepts of designing reliable systems; analytical evaluation techniques, faults and advances in ultra-reliable distributed systems, fault-tolerant software systems; case studies include the space Shuttle, Airbus, and Boeing fly-by-wire primary flight computers as well as systems in reliable data bases and financial markets. Additional projects and assignments reqd for grad cr. Prereq: CS 245 or EE 441 or perm.

CS **J461/J561 Advanced Database Systems** (3 cr). Theory, analysis, and implementation of database architecture, security, performance, query optimization, recovery and concurrency control, reliability, integrity, commit protocols, distributed processing, deadlock detection and management. Additional projects/assignments reqd for grad cr. Prereq: CS 360.

CS **J470/J570 Artificial Intelligence** (3 cr). Concepts and techniques involved in artificial intelligence, Lisp, goal-directed searching, history trees, inductive and deductive reasoning, natural language processing, and learning. Extra term paper reqd for cr in 570. Prereq: CS 213 or perm.

CS **J472/J572 Evolutionary Computation** (3 cr). Solving computation problems by "growing" solutions; simulates natural evolution using analogues of mutation, crossover, and other generic transformations on representations of potential solutions; standard EC techniques such as genetic algorithms and evolutionary programming, mathematical explanations of why they work, and a survey of some applications; the focus is on solving real-world problems using projects. Graduate-level research and possible paper or presentation required for grad cr. Prereq: CS 213.

CS **480 Design—Individual Project** (4 cr). Formal development techniques applied to definition, design, coding, testing, and documentation of a computer programming project; each student completes an individual project. Two lec a wk; significant lab work reqd. Prereq: Engl 317 and sr standing in CS.

CS **481 Design—Group Project** (4 cr). Application of formal design techniques to development of a large computer science project performed by students working in teams. Significant lab work reqd. Prereq: CS 480.

CS **J482/J582 Software Project Management** (3 cr). Techniques for planning, organizing, scheduling, and controlling complex software system development and support projects. Additional projects/assignments reqd for grad cr. Prereq: CS 381 or 480 or perm.

CS **J484/J584 Software Quality Assurance** (3 cr). Actions necessary to provide confidence that a software product conforms to established technical requirements; strategies for implementation and management of SQA, product reviews, test plans and procedures, audits, configuration management, and reliability assessment; concepts of software quality. Additional projects/assignments reqd for grad cr. Prereq: CS 381.

CS **J485/J585 Software Process Management** (3 cr). Systematic software development from management perspective that centers on constituent tasks and their interrelationships; evaluation of software development process maturity and means to improve process maturity. Additional projects/assignments reqd for grad cr. Prereq: CS 381.

CS **ID&WS-J486/ID&WS-J586 Software Specification** (3 cr). WSU CptS 483/580. Formal specification and analysis of software using a formal specification language, and case studies of designs expressed in a formal specification language. Additional projects/assignments reqd for grad cr. Prereq: perm.

CS **490 Theory of Computation** (3 cr). See Math 485.

CS **495 Analysis of Algorithms** (3 cr). See Math 475.

CS **J496/J596 Computational Complexity** (3 cr). Development of a theory of complexity to categorize which problems are harder than others, in what sense, and why; an approach that is abstract and mathematical, not algorithmic; topics include models of computation, complexity classes, reductions, and relativizations. Additional readings or project reqd for grad cr. Prereq: CS 490 or Math 485.

CS **499** (s) **Directed Study** (cr arr). Prereq: perm.

CS **500 Master's Research and Thesis** (cr arr). Prereq: perm.

CS **501** (s) **Seminar** (cr arr). Prereq: perm.

CS **502** (s) **Directed Study** (cr arr). Prereq: perm.

CS **504** (s) **Special Topics** (cr arr). Prereq: perm.

CS **507 Fundamentals of Research** (3 cr). See For 510.

CS **ID&WS510 Theory of Programming Languages** (3 cr). WSU Cpt S 518. Advanced topics in programming language theory including formal syntax, formal semantics, denotational semantics, and type theory; principles of programming language design are stressed; not a comparative language class. Prereq: CS 310 or equiv; coreq: CS 490 or equiv.

CS **513 Concurrent Systems** (3 cr). See CS J413/J513.

CS **520 Data Communication Systems** (3 cr). See CS J420/J520.

CS **521 Computer Network Design** (3 cr). Design of optimal and near-optimal network topologies; capacity and flow assignment; performance analysis of networks; routing, flow control, and congestion algorithms. Prereq: CS J420/J520.

CS **523 Network Security** (3 cr). See CS J423/J523.

CS **535 Foundations of Modern Programming Methods** (3 cr). See CS J435/J535.

CS **541 Operating Systems** (3 cr). Principles of contemporary operating systems for network and distributed computer systems; sequential processes, scheduling, process synchronization, device management, file systems, memory management, and protection and security. Prereq: CS 341 or perm.

CS **542 Computer Security Concepts** (3 cr). See CS J442/J542.

CS **549 Fault/Tolerant Systems** (3 cr). See CS J449/J549.

CS **551 Advanced Computer Architecture** (3 cr). Same as EE 541. Principles and alternatives in instruction set design; processor implementation techniques, pipelining, parallel processors, memory hierarchy, and input/output; measurement of performance and cost/performance trade-off. Prereq: CS 245 or equiv and Stat 301 or equiv.

CS **561 Data Base Management Systems** (3 cr). See CS J461/J561.

CS **570 Artificial Intelligence** (3 cr). See CS J470/J570.

CS **572 Evolutionary Computation** (3 cr). See CS J472/J572.

CS **580 Graduate Project** (1-6 cr, max 6). Application of formal design and documentation techniques to the development of computer programming project; project selected in consultation with student's major professor. Prereq: CS 381, 480 or perm.

CS **ID581 Software Engineering Analysis** (3 cr). WSU Cpt S 521. Intro to research in software engineering; strong emphasis on application of quantitative techniques in the software life cycle; students will develop a command of current software engineering literature; exploration of techniques of mathematical modeling and solutions to software engineering problems.

CS **582 Software Project Management** (3 cr). See CS J482/J582.

CS **ID583 Software Engineering Measurement** (3 cr). WSU Cpt S 523. Measurement methodology is the foundation of the emerging discipline of software engineering; software products are constructed by people engaged in a software development process in a development environment; focus on learning to measure the attributes of these four measurement domains; examples of software measurement and the applications of these measurements; using these techniques as the basis for the design of software engineering experiments; application of the scientific method in evaluation of programming methods and models; extension of the measurement concepts into the area of statistical modeling. Prereq: CS 581.

CS **584 Software Quality Assurance** (3 cr). See CS J484/J584.

CS **585 Software Process Management** (3 cr). See CS J485/J585.

CS **586 Software Specification** (3 cr). See CS J486/J586.

CS **590 Theory of Computation** (3 cr). Various models of computation, such as Turing machines, recursive functions, and register machines; relative strengths and weaknesses of these models, with particular attention to uncomputability results; computational complexity as a natural outcome of restrictions to these models. Prereq: CS 490.

CS **596 Computational Complexity** (3 cr). See CS J496/J596.

CS **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. (There is a limit on the number of credits in 599 that can be included on a study plan.) Prereq: perm.

CS **600 Doctoral Research and Dissertation** (cr arr).

CORE

William L. Voxman, Core Coordinator (104 Admin. Bldg. 83844-3160; phone 885-5220; wvoxman@uidaho.edu).

CORE **101** (s) **Core Discovery** (4 cr). Open to freshmen only. *May be used as core credit in J-3-d or J-3-e, depending on section* **(students must complete both CORE 101 and 102 before the courses can be counted for core credit).** First semester of a year-long interdisciplinary, thematically based course, intended to introduce students beginning their university experience to a variety of humanities and social science disciplines and perspectives on topics of broad interest; all themes/sections emphasize discussion and frequent student-faculty and student-student interactions; each includes attention to issues of critical thinking, diversity, and methods of inquiry. Students continue in the spring in CORE 102 (same subject and instructor).

CORE **102** (s) **Core Discovery** (3 cr). Open to freshmen only. *May be used as core credit in J-3-d or J-3-e, depending on section* **(students must complete both CORE 101 and 102 before the courses can be counted for core credit).** Second semester of a year-long interdisciplinary, thematically based course, intended to introduce students beginning their university experience to a variety of humanities and social science disciplines and perspectives on topics of broad interest; all themes/sections emphasize discussion and frequent student-faculty and student-student interactions; each includes attention to issues of critical thinking, diversity, and methods of inquiry. Prereq: CORE 101 (same subject and instructor).

CORE **201** (s) **Integrated Science** (3 or 4 cr). *May be used as core credit in J-3-b.* An interdisciplinary, thematically based course intended to provide the student with the skills to analyze and evaluate scientific claims and to make intelligent scientific and social decisions; among the topics addressed are the impact of science on society and the ethical dilemmas and moral consequences of scientific research; all themes/sections emphasize discussion, collaborative work, and the conduct of science, though not necessarily in a formal lab setting.

Counseling and School Psychology

James M. Cassetto, Interim Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83843-3083; phone 208/885-6556).

CASP **200** (s) **Seminar** (cr arr). Prereq: perm.

CASP **203** (s) **Workshop** (cr arr). Prereq: perm.

CASP **204** (s) **Special Topics** (cr arr). Prereq: perm.

CASP **299** (s) **Directed Study** (cr arr). Prereq: perm.

CASP **400** (s) **Seminar** (cr arr). Prereq: perm.

CASP **403** (s) **Workshop** (cr arr). Prereq: perm.

CASP **404** (s) **Special Topics** (cr arr). Prereq: perm.

CASP **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program. Additional projects/assignments reqd for grad cr.

CASP **J407/J507 Orientation to Counseling** (2 cr) (C, 507 only). Exploratory course for students considering entering the counseling profession. Focus on counselor's role and function, the counselor as a person, ethical considerations, and other contemporary issues; involves small group work and role playing; assessment of knowledge and skills acquired. Successful completion of course is one of the criteria for final admission in the master's degree program in counseling and human services. Additional projects/assignments reqd for grad cr. Prereq: perm.

CASP **464 Career Guidance** (3 cr). See PTE 464.

CASP **499** (s) **Directed Study** (cr arr). Prereq: perm.

CASP **500 Master's Research and Thesis** (cr arr).

CASP **501** (s) **Seminar** (cr arr). Prereq: perm.

CASP **502** (s) **Directed Study** (cr arr). Prereq: perm.

CASP **503** (s) **Workshop** (cr arr). Prereq: perm.

CASP **504** (s) **Special Topics** (cr arr). Prereq: perm.

CASP **505** (s) **Professional Development** (cr arr). See CASP J405/J505.

CASP **507 Orientation to Counseling** (2 cr) (C). See CASP J407/J507.

CASP **510 Individual Appraisal I** (3 cr). Analysis of statistical, psychometric, sociometric, and clinical principles essential to successful application of informal and standardized assessment in counseling and human services; current issues, such as cultural, gender, and other individual differences. Prereq: perm.

CASP **511 Individual Appraisal II** (3 cr). Application of informal and standardized assessment in various professional settings in counseling and human services; case studies on active clients conducted in accordance with prescribed procedures. Prereq: CASP 510 and perm.

CASP **512 Techniques of Counseling I** (3 cr). Review of pertinent counseling theories, stages of the developmental helping process, interpersonal skill building, establishing personal approach. Prereq: perm.

CASP **513 Techniques of Counseling II** (3 cr). Overview of prevailing theories of counseling; study of predominant approaches, with emphasis on person-centered/existential/gestalt and cognitive/behavioral approaches; didactic and experiential activities to model application of techniques. Prereq: CASP 512.

CASP **514 Career Counseling and Development** (3 cr). Career development theories, occupational and educational information and systems, career and leisure counseling, life-style and career decision-making, and career development program planning, resources, and evaluation. Prereq: perm.

CASP **515 Counseling in the Schools** (3 cr). Analysis of developmental approach to school counseling through in-depth study of its potential for application in educational settings; procedures to plan, design, implement, and evaluate developmental school programs are emphasized. Prereq: perm.

CASP **516 Counseling in the Schools II** (3 cr). Exploration of school system dynamics, the change process, and in-depth orientation to problem-specific preventative and interventive measures. Prereq: CASP 515.

CASP **517 Group Counseling** (2 cr). Group theory and practice in counseling, including appropriate uses of group, member selection, planning and implementing groups, members' roles, rights, and responsibilities, group leader characteristics and skills, curative factors in group, ethical considerations, problems unique to group, client dynamics in group, and stages of group development. Prereq: CASP 512 and 513, or CASP 512 and perm; coreq: CASP 518.

CASP **518 Group Counseling Laboratory** (2 cr). Participation in a personal development group to promote group counseling skills and awareness of the self as an instrument in effective group leadership; participation as group members as well as observing and serving as part of a reflecting team for the group. Graded P/F. Four hrs of lab a wk. Prereq: CASP 512 and 513, or CASP 512 and perm.

CASP **519 Social and Cultural Foundations in Counseling** (3 cr). Studies of societal changes and trends, human roles, societal subgroups, cultural mores and social interaction patterns, and differing lifestyles. Prereq: perm.

CASP **520 Approaches to Counseling with Families** (3 cr). Introduction to the application of general systems theory to families within the context of the larger culture; overview of systems approaches to family treatment, multicultural aspects of family treatment, ethics involved in consultation with families, and referral to appropriate services. Prereq: CASP 512, 513, 517, and 519.

CASP **528 Diagnosis and Case Conceptualization in Counseling and Human Services** (3 cr). Review of adult and child psychopathology with an emphasis on diagnosis and case conceptualization; basic issues in classification and diagnosis; training in differential diagnosis utilizing the DSM-IV diagnostic system.

CASP **529 Psychopharmacology** (2 cr). Examination of medications that are commonly prescribed for psychiatric disabilities; descriptions of medication effects, interaction, and side effects.

CASP **530 Foundations of Rehabilitation and Community Counseling** (3 cr) (C). Orientation to the history, philosophy, legislation, and delivery of services of rehabilitation and community counseling.

CASP **531 Psycho-social Aspects of Disability** (3 cr). Social and psychological aspects of disability; attitudinal and environmental problems associated with specific disabilities and their implications for intervention, approaches to rehabilitation across all disabilities, and differences between typical and pathological behavior of people with disabilities.

CASP **532 Medical/Physical Aspects of Rehabilitation** (2 cr) (C). Medical terminology, physical characteristics, and medical information needed to serve people with disabilities; medical and health services used to accommodate and remediate medical and physical disabilities.

CASP **533 Principles of Rehabilitation, Community, and School Counseling** (2 cr). Survey of human service agencies including their history, purpose, and intent, and eligibility requirements; description of community and rehabilitation services populations and personnel.

CASP **534 Rehabilitation and Community Case Management** (2 cr). Making effective case and case load management decisions including intake interviewing; medical, psychological, and vocational evaluation; job placement and rehabilitation/treatment planning; preparation in writing case histories and notes.

CASP **535 Vocational Placement and Assistive Technology** (3 cr). Environmental and attitudinal barriers to employment experienced by people with disabilities; legislation and current assistive technologies examined as a means of addressing barriers to employment; methods and techniques in employer contact, job analysis, job development, job placement, and transitional planning to overcome those barriers; integrating knowledge about the consumer and labor markets to facilitate an appropriate vocational placement and retention. Prereq: CASP 533 or perm.

CASP **536 Professional Issues, Ethics, and Law in Counseling and School Psychology** (3 cr). Analytical process of ethical decision-making as it applies to casework, organizational policy, and law; examination of relevant professional and legal issues.

CASP **540 Addictions Counseling** (2 cr). Knowledge and abilities of assessment, treatment, and relapse prevention of addictions; focus on interventions appropriate for people with addiction problems.

CASP **550 Introduction to School Psychology** (3 cr). Overview of history, present role, and function: discussion of professional preparation, standards for delivery of services, ethical/legal issues, alternative delivery systems, emergent technologies, and the future of school psychology.

CASP **551 Assessment of Cognitive Functioning** (2 cr). Overview of theories of intelligence, commonly used assessment instruments/procedures, measurement and statistical concepts, test interpretations and reporting practices, assessment of diverse populations, and ethical/legal issues; discussion of emerging trends (e.g., portfolio assessment, curriculum based measures, and adaptive behavior measures). Coreq: CASP 552.

CASP **552 Lab: Assessment of Cognitive Functioning** (1 cr). Develop competence in administering, scoring, interpreting, and reporting results of intelligence tests commonly used in school settings. Coreq: CASP 551.

CASP **560 Advanced Theory and Practice of Career Development** (3 cr). Same as ACTE 560. Builds upon the foundation of personality psychology, genetic research, and modern neuroscience in understanding the complex process of career decision-making.

CASP **563 Consultation in Counseling and Human Services** (2 cr). Constructs and processes that influence human, organizational, and systems development through consultation. Prereq: placement in counseling and school psychology specialist programs or perm; coreq: CASP 564.

CASP **564 Consultation Lab** (1 cr). Application of consultation skills in Human Services settings including entry, diagnosis of presenting problem, implementation of choice, and disengagement. Coreq: CASP 563.

CASP **570 Research in Counseling** (1 cr). Review of research in counseling; presentation of student and faculty research and review of research.

CASP **571 Counselor Education and Supervision** (1 cr). Counselor education curriculum, procedures, and methods; counselor supervision purposes, procedures, and methods.

CASP **572 Advanced Theories of Individual and Group Counseling** (3 cr). Analysis of contemporary counseling theories; process, procedures, and techniques of major theories; emphasis on original sources. Prereq: CASP 512, 513, 517, and perm.

CASP **578 Ethics and Legal Issues in Counseling and Human Services** (1 cr). Advanced considerations in application of analytical process of ethical decision-making applied to casework, organization policy, and law.

CASP **579 Lifestyle Diversity** (1 cr). Exploration of differences in aspirations for social status, work climate, education, mobility, and financial security.

CASP **597** (s) **Practicum** (cr arr). Closely supervised experience as a counselor or school psychologist in a professional setting; 50 hrs of experience are required for each credit. Graded P/F. Prereq: CASP 510, 512, PTE 464, and perm.

CASP **598** (s) **Internship** (cr arr). For advanced grad students. Currently offered in counselor education, counselor supervision, college counseling, college student personnel services, school special services, school psychology, school counseling, agency counseling, and private counseling practice. Graded P/F. Prereq: perm.

CASP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

CASP **600 Doctoral Research and Dissertation** (cr arr).

Crime and Justice Studies

Donald E. Tyler, Chair, Dept. of Sociology/Anthropology/Justice Studies (101 Phinney Hall 83844-1110; phone 208/885-6751).

PREREQUISITE: Students are required to complete CJ 101 before enrolling in any other course in this field; exceptions by permission of the instructor.

CJ **101 Introduction to the Justice System** (3 cr). Survey of criminal justice organizations and procedures including history and function of law enforcement, probation, and parole agencies.

CJ **WS150 Organizational Environment of Criminal Justice** (3 cr). WSU Crm J 150. Impact of organization structures and dynamics on processes of decision making and the performance of criminal justice agencies. Prereq: CJ 101.

CJ **200** (s) **Seminar** (cr arr). Prereq: perm.

CJ **204** (s) **Special Topics** (cr arr). Prereq: perm.

CJ **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

CJ **299** (s) **Directed Study** (cr arr). Prereq: perm.

CJ **320 Police, Society, and Justice** (3 cr). History, development, and role of the police as a component of the justice system, with particular attention to the relationship of the police to community, society, and related institutions of social control; societal control of the police as well as the influences of social change and urban decay and disorder on methods of policing. Prereq: CJ 101.

CJ **325 Criminal Law** (3 cr). Sources and purpose of criminal law, meaning of criminal responsibility, and elements of crime; taught by College of Law faculty members.

CJ **WS330 Crime Control Policies** (3 cr). WSU Crm J 330. Analysis of ideologies, assumptions, and performance of crime control policies. Prereq: CJ 101.

CJ **332 Corrections** (3 cr). See Soc 332.

CJ **333 White Collar Crime** (3 cr). The costs, causes, and control of crime by and against businesses and other organizations; the relationship between trust and white collar crime; the impact of the media in shaping perceptions of white collar crime.

CJ **340 Crime, Justice, and the Media** (3 cr). Critical evaluation of the media portrayals of crime and the criminal justice system; analysis of how the media help to shape public understanding and public policy.

CJ **WS365 Juvenile Justice and Corrections** (3 cr). WSU Crm J 365. History, philosophy, legal process, performance, and outcomes of the juvenile justice and corrections systems. Prereq: CJ 101.

CJ **WS370 Introduction to Policing in America** (3 cr). WSU Crm J 370. Development, organization, policies, and performance of the police. Prereq: CJ 101.

CJ **400** (s) **Seminar** (cr arr). Prereq: perm.

CJ **401 Justice Policy Issues** (3 cr). Focus on social, political, and economic factors that influence operation of the justice system and justice policy formation; critical issues such as the media and fear of crime to drugs and sentencing policy. Prereq: senior standing or perm.

CJ **404** (s) **Special Topics** (cr arr). Prereq: perm.

CJ **WS-J405/WS-J505 Comparative Criminal Justice Systems** (3 cr). WSU Crm J 405/505. Credit not granted for both CJ 405 and 505. Comparative study of criminal justice systems in selected foreign countries. Graduate-level counterpart has additional requirements. Prereq: CJ 101.

CJ **WS420 Law of Evidence and Criminal Procedure** (3 cr). WSU Crm J 420. Principal court decisions concerning standards of conduct and rights in the criminal process; evidentiary principles and privileges. Prereq: CJ 325.

CJ **422 Race, Gender, and Class in the Justice System** (3 cr). Critical focus on the issues of race, class, and gender and their consequences for the operation of the justice system; the role of the justice system in the history and experience of various minorities, theories of minority crime, and issues of selective enforcement, sentencing disparity, and disproportionate incarceration; the role of gender considered through the examination of offenders, victims, and criminal justice professionals.

CJ **WS424 Community Corrections** (3 cr). WSU Crm J 424.

CJ **430 Juvenile Justice** (3 cr). History, philosophy, and theory behind juvenile justice; explanation of the process and outcomes of cases, including in-depth coverage of juvenile corrections and the "continuum of care"; focus on current legislation and trends. Prereq: Soc 330.

CJ **498** (s) **Internship in Criminal Justice** (1-6 cr, max 6). Directed internship in designated criminal justice agency or institution. Graded P/F. Prereq: perm.

CJ **499** (s) **Directed Study** (cr arr). Prereq: perm.

CJ **WS505 Comparative Criminal Justice Systems** (3 cr). See CJ J405/J505.

CJ **WS530 Criminal Justice: Process and Institutions** (3 cr). WSU Crm J 530. Processes of criminal justice in the context of the social, political, and economic environments.

CJ **WS550 Planned Change in Criminal Justice** (3 cr). WSU Crm J 550. Analysis of change efforts aimed at individual, organizations, and communities to reduce crime and improve the criminal justice system.

CJ **WS570 The Police and Society** (3 cr). WSU Crm J 570. Community and selected social institutional factors as related to their influence on policy systems.

CJ **WS592** (s) **Topics in Criminal Justice** (3 cr, max 6). WSU Crm J 592. Selected issues and topics in criminal justice.

Dance

Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).

Dan **100 Dance in Society** (3 cr). May be used as core credit in J-3-d. Introduction to dance as an art form, as entertainment, and as a lifelong activity; emphasis on appreciation and understanding of movement as an expression of human values, genres and historical styles, factors affecting change, current issues.

Dan **105** (s) **Dance** (1 cr, max arr). Same as PEB 105. Modern, folk, ballet, jazz, tap, square, and social dancing. Two hrs a wk. Graded P/F.

Dan **112 Recreational Dance Forms** (2 cr). Folk, square, social dance skills, cultural influences; basic teaching methods; dance in education and recreation.

Dan **200** (s) **Seminar** (cr arr). Prereq: perm.

Dan **203** (s) **Workshop** (cr arr). Prereq: perm.

Dan **204** (s) **Special Topics** (cr arr). Prereq: perm.

Dan **210 Dance Theatre** (2-3 cr, max 12). Open to all students. Stagecraft; dance styles including modern, jazz, ballet, tap. Two hrs of company class a wk plus additional rehearsals leading to performance. Prereq: dance experience.

Dan **216** (s) **Technique** (cr arr). For majors and minors. Theory and techniques in ballet, modern, jazz, and performance. Two to three hrs a wk in a basic instructional curriculum. Prereq: perm of division.

Dan **220 Children's Dance** (2 cr). Methods and resource material for teaching dance to elementary school children and integrating dance into elementary school curriculum. (Alt/yrs)

Dan **270 Technical Competence I** (1-10 cr, max 10). Technical competence is gained from experience in an area of concentration related to the bachelor's degree in dance. Grades for successful completion of Dan 270, 370, and 470 will be transcripted as P (pass) during the student's last semester and completion of all degree requirements. Prereq: 9 credits in residence in dance major.

Dan **299** (s) **Directed Study** (cr arr). Prereq: perm.

Dan **J320/J510 Labanotation** (3 cr). Intro to methods of notating movement; notating and reading basic elements of Motif Writing and Labanotation. Additional projects/assignments required for graduate credit include a research paper and oral presentation to class comparing early and contemporary notation systems; developing a series of lessons applying notation concepts to technique classes—these lessons must demonstrate the graduate student's comprehension of the symbolic language system of Labanotation. Prereq: perm. (Alt/yrs)

Dan **J321/J511 Dance Pedagogy** (3 cr). Learning styles, teaching styles, and behaviors as they affect teaching and learning in dance; science of dance training. Additional projects/assignments required for graduate credit include observation and analysis of dance teacher behavior in a minimum of two genres and two skills levels; demonstrated ability to integrate pedagogical principles in teaching a minimum of two 50-minute technique classes on the university level. Prereq: perm. (Alt/yrs)

Dan **J325/J525 Dance Production** (3 cr). Organization and production of dance concerts; program planning, marketing, management, costume design, staging the production. Additional projects/assignments required for graduate credit include working a minimum of 90 hours as production assistant to the director of a mainstage dance theatre production; documenting the process and producing a detailed production notebook (manual) for that position. (Alt/yrs)

Dan **370 Technical Competence II** (1-10 cr, max 10). See Dan 270. Prereq: completion of junior year in dance major.

Dan **J383/J583 Dance Composition** (1 cr, max 6). Improvisation and choreography using basic composition elements; advanced exploration of choreographic procedures and performance. Additional projects/assignments required for graduate credit include a written discussion and oral presentation of a minimum of four major choreographic works based upon video analysis and research in dance history and criticism. Prereq: Dan 105 or 216 (Modern I/II) and perm.

Dan **400** (s) **Seminar** (cr arr). Prereq: perm.

Dan **403** (s) **Workshop** (cr arr). Prereq: perm.

Dan **404** (s) **Special Topics** (cr arr). Prereq: perm.

Dan **410 Pre-professional Dance Theatre** (2-3 cr, max 12). Advanced work in choreography and performance. Two hrs of company class a wk plus additional rehearsals leading to performance. Prereq: Dan 210, 325, 383.

Dan **415 Dance Lab** (1-3 cr, max 3). Studio techniques in dance movement skills for the theatre. Prereq: perm.

Dan **416** (s) **Advanced Technique** (cr arr). For majors and minors. Advanced techniques and theory in ballet, modern, jazz, and performance. Two to three hrs a wk in preprofessional technique classes. Prereq: perm of division.

Dan **J420/J520 Dance Accompaniment** (3 cr). Development of the pre-professional dancer's ability to use sound, particularly music, appropriately and creatively as an accompaniment for dance teaching, choreography, and performing. Additional projects/assignments reqd for grad cr. Prereq: perm. (Alt/yrs)

Dan **J421/J521 Dance History** (3 cr). Development of theatrical, social, and educational dance from lineage-based to contemporary styles. Students registering for graduate credit are required to complete an additional research paper and presentation. Prereq: Dan 100 or perm. (Alt/yrs)

Dan **433 Practicum: Dance Teaching** (7 or 14 cr). Supervised teaching in grades 1-12; two-thirds of experience in secondary schools. Graded P/F. Prereq: ED 314, special methods in subject area, cumulative GPA of 2.50, and perm of dept. (Submit application via director of Center for Dance to director of clinical experiences in teacher education by December 1 of school yr before enrolling.)

Dan **470 Technical Competence III** (1-12 cr, max 12). See Dan 270. Prereq: enrollment in the final semester of the degree program in dance major.

Dan **490 Senior Project** (3 cr). Open-ended projects representing the capstone of the student's work, consistent with the chosen emphasis within the dance degree (e.g., concerts of original work, a major choreographic work, major performance, teaching or research projects). Prereq: senior standing.

Dan **495** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Dan **499** (s) **Directed Study** (cr arr). Prereq: perm.

Dan **510 Labanotation** (3 cr). See Dan J320/J510.

Dan **511 Dance Pedagogy** (3 cr). See Dan J321/J511.

Dan **520 Dance Accompaniment** (3 cr). See Dan J420/J520.

Dan **521 Dance History** (3 cr). See Dan J421/J521.

Dan **523 Issues in Dance Pedagogy** (3 cr). Current research, trends, and issues affecting effective dance teaching methods and teaching behavior, curriculum development, professional preparation.

Dan **525 Dance Production** (3 cr). See Dan J325/J525.

Dan **583 Dance Composition** (1 cr, max 6). See Dan J383/J583.

Economics

S. M. Ghazanfar, Chair, Dept. of Economics (315 Continuing Ed. Bldg. 83844-3240; phone 208/885-6294; e-mail econ@uidaho.edu).

Note: Enrollment in 300- and 400-level economics courses is restricted to students who have completed at least 58 credits. In addition, CBE students must have earned at least a 2.4 GPA in the CBE predictor courses.

No course (CBE or outside the college) that is required in a CBE student's curriculum may be taken by CBE undergraduates on a P/F basis, with the exception of courses that are taught only on a P/F basis. Only upper-division CBE courses used as free electives may be taken by CBE undergraduates on a P/F basis.

Students who have not completed the prerequisites to a course for which they are otherwise eligible may register for the course with the instructor's approval.

Note: The combination of credits for Econ 201, 202, and 272 may not exceed 6 credits.

Econ **201, 202 Principles of Economics** (3 cr) (C). May be used as core credit in J-3-e. May be taken in either order. Econ 201: organization and operation of American economy; supply and demand, money and banking, macroeconomic analysis of employment, aggregate output and inflation, public finance, and economic growth. Econ 202: microeconomic principles governing production, price relationships, and income distribution. Econ 201 or 202 carry only two cr after 272. May involve some evening exams.

Econ **204** (s) **Special Topics** (cr arr). Prereq: perm.

Econ **272 Foundations of Economic Analysis** (4 cr). May be used as core credit in J-3-e. One-semester introductory course on the principles of economics, covering both micro- and macro- concepts, theory, analysis, and applications. May involve evening exams. Carries no credit after Econ 201 and 202; carries 3 credits after either Econ 201 or 202. Students who have successfully completed this course and later decide to major in economics are required, in consultation with the adviser, to take either Econ 201 or 202 for 2 credits.

Econ **299** (s) **Directed Study** (cr arr).

Econ **316 Economics of Regulation** (3 cr). Analysis of rationale and effects of governmental regulation of marketplace; alternative theories of regulation; theories of market failure and governmental failure; rent seeking and dissipation; public utilities; selected case studies. Prereq: Econ 202 or 272 or perm.

Econ **343 Money and Banking** (3 cr) (C). Influence of money and banking on economic activity; influence of monetary policies to achieve society's economic goals. May include evening exams. Prereq: Econ 201 and 202, or 272.

Econ **345 American Economic Development** (3 cr). Patterns and causes of change in the American economy from colonial times to the present. Prereq: Econ 201 and 202, or 272.

Econ **351 Intermediate Macroeconomic Analysis** (3 cr). Theory of the economy as a whole; national income accounting as a tool of analysis; national output and income, employment, price levels, and growth. May include evening exams. Prereq: Econ 201 and 202, or 272, or perm.

Econ **352 Intermediate Microeconomic Analysis** (3 cr). Theory of the consumer, firm, industry, market, price determination, and allocation of productive resources. Prereq: Econ 201 and 202, or 272 or perm.

Econ **353 Quantitative Economics and Forecasting** (3 cr). Quantitative economic analysis including data collection, modeling, regression analysis, forecasting methods, and time series analysis; computer applications. Prereq: Econ 201 and 202, or 272; Stat 251, 271, or 301.

Econ **385 Environmental Economics** (3 cr). Theory of externalities and public goods, and application of economic principles to environmental issues. Prereq: Econ 202 or 272 or perm.

Econ **390 Comparative Economic Systems** (3 cr). International comparisons of the origin, development, and attributes of the world's economic systems. Prereq: Econ 201 and 202, or 272.

Econ **398** (s) **Economics Internship Program** (1-3 cr, max 6). Enrollment restricted to economics majors; may not be used to fulfill upper-division economics requirement in any of the three economics degree programs. Graded P/F. Relevant learning experience in business and government. Prereq: perm.

Econ **400** (s) **Seminar** (cr arr). Prereq: perm.

Econ **402** (s) **Workshop** (cr arr). Prereq: perm.

Econ **404** (s) **Special Topics** (cr arr). Prereq: perm.

Econ **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Econ **407 Public Finance** (3 cr). Role of government in a market economy; public choice and collective decision-making; tax-shifting and incidence; structure and economics of federal taxes; governmental budgeting; public debt; special topics. Prereq: Econ 201 and 202, or 272.

Econ **ID&WS408 State and Local Government Finance** (3 cr). WSU Econ 481. Fiscal federalism and the role of state-local jurisdictions, patterns and determinants of expenditures, structure and economic effects of revenue sources (e.g., sales, income, property taxation), urban fiscal problems, intergovernmental relations, and future trends. Prereq: Econ 201 and 202, or 272.

Econ **J409/J509 Mathematical Economics** (3 cr). See AgEc J409/J509.

Econ **415 Market Structure and Governmental Policy** (3 cr). Analysis of economic behavior under different market structures, e.g., competition, monopoly, oligopoly, monopsony, oligopsony, bilateral monopoly and cartels; theory of contestable markets; antitrust; regulation; selected case studies. Prereq: Econ 202 or 272 or perm.

Econ **ID430 Regional/Urban Economics** (3 cr). WSU Econ 475. Location of economic activity, transportation problems, resource and product distribution methods, urban structure and growth, and related policy issues. Prereq: Econ 201 and 202, or 272.

Econ **441 Labor Economics** (3 cr). Structure and composition of the labor force, wages and employment, human resources, income-maintenance program, and related policy issues. Prereq: Econ 201 and 202, or 272.

Econ **446 International Economics** (3 cr). Analysis of international trade and financial transactions; trade policy; foreign exchange markets; adjustment processes; and international monetary system. May include evening exams. Prereq: Econ 201 and 202, or 272.

Econ **447 Economics of Developing Countries** (3 cr). Same as AgEc 447. Characteristics of underdevelopment; historical perspective; theories and policies; development problems, e.g., poverty and income distribution, population, urban-rural migration and unemployment, agriculture, trade, aid, investment, debt; future prospects. Prereq: Econ 201 and 202, or 272, or perm.

Econ **WS450 The Economics of Health Care** (3 cr). WSU Econ 455.

Econ **453 Econometrics** (3 cr). Same as Stat 433. Use of quantitative techniques to analyze and test economic theories. Prereq: Stat 251 or 271, and Math 160 or 170.

Econ **ID-J455/J555 History of Economic Thought** (3 cr). WSU Econ 402. Development of economic thought; special focus on selected schools, including Greeks, Scholastics, Mercantilists, Physiocrats, Classicals, and neo-Classicals. Additional projects/assignments reqd for grad cr. Prereq: Econ 351, 352, or perm.

Econ **490 Economic Theory and Policy** (3 cr). A capstone course for economics majors that integrates the theory, quantitative methods, and policy in the undergraduate economics major. Prereq: Econ 351, 352, 353, or perm.

Econ **499** (s) **Directed Study** (cr arr).

Econ **500 Master's Research and Thesis** (cr arr).

Econ **501** (s) **Seminar** (cr arr). Prereq: perm.

Econ **502** (s) **Directed Study** (cr arr). Prereq: perm.

Econ **504** (s) **Special Topics** (cr arr). Prereq: perm.

Econ **507 Research Methodology** (3 cr). See AgEc 507.

Econ **509 Mathematical Economics** (3 cr). See AgEc J409/J509.

Econ **ID&WS510 Advanced Microeconomics** (3 cr). Same as AgEc 510. WSU Ag Ec 522 and Econ 510. Theory of consumer behavior, theory of production behavior, theory of imperfect competition, capital theory, and welfare economics. Prereq or coreq: Econ/AgEc 409/509 or equiv, or perm.

Econ **ID&WS522 Macroeconomic Analysis** (3 cr). Same as AgEc 522. WSU Econ 500. Theory of national income determination and stabilization policy in a monetary economy. Prereq: Econ 351 or perm.

Econ **525 Econometrics** (3 cr). See AgEc 525.

Econ **526 Economics of Business Decisions** (3 cr). Carries no credit after Econ J409/J509 or 510. Applied microeconomics, covering topics such as theory of demand, production, cost, forecasting, capital budgeting. May involve some evening exams. Prereq: perm.

Econ **555 History of Economic Thought** (3 cr). See Econ J455/J555.

Econ **597** (s) **Practicum** (cr arr). Prereq: perm.

Econ **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Education

Dale O. Gentry, Dean, College of Education (301 Educ. Bldg. 83844-3080; phone 208/885-6772).

See also Educational Administration, Special Education, and Teacher Education.

ED **101 Orientation to the Teaching Profession** (1 cr). Prospective teachers examine current trends in education, school-based practices, and professional responsibilities of school personnel.

ED **201 Diverse Learners in Schools and Social/Cultural Contexts** (3 cr). Introduction to an inquiry-based model to examine student learning and diversity in relation to the purposes and functions of schools in society; focus on K-12 exposure to diverse learners in a variety of contexts. Thirty hours of field experience required.

ED **301 Principles of Learning and Development in Education** (3 cr). Theoretical and practical applications of the process of human growth, development, and learning within diverse educational communities. Two lec and 2 hrs of lab a wk. Prereq: ED 201 or perm.

ED **302 Curriculum, Instruction, and Assessment Strategies** (3 cr). Examination of the curriculum development process, knowledge of instructional planning and models of teaching, and an understanding of a wide array of formal, informal, and authentic assessment strategies within and across teaching disciplines; classroom management, exceptionality, philosophical foundations, technology, multi-cultural issues, and instructional inquiry examined within each of these processes. Prereq: ED 301 or perm.

ED **312 Educational Psychology** (2 cr). Processes of human growth, development, and learning, and the practical application of this knowledge to teaching. Prereq: Psyc 101.

ED **313 Educational Measurement** (1 cr). Application of standardized testing, measures of central tendency, variability and correlation in educational research. Three lec a wk. Coreq: ED 312 or perm.

ED **314 Strategies for Teaching** (3 cr). Problems and methods of teaching common to all subject and grade levels. Two lec and two hrs of microteaching lab a wk.

ED **328 Introduction to Educational Technology** (2 cr). Provides individuals with minimal competencies enabling them to set up and use educational technology equipment, software, and related peripherals in K-college classroom settings; includes overview of Macintosh and PC computer hardware and software, videodisc, CD-ROM applications, content-specific hardware and software (e.g., touchscreens and science probeware), and traditional audiovisual display equipment and materials.

ED **401 Professional Role Development** (1-3 cr, max 3). Preservice teachers will examine and evaluate the application of foundational knowledge of teaching, learning, and evaluation; school structures and professional roles; family and community resources and concerns; funding processes; legal and legislative issues; and professional development. Prereq: ED 302 and program recommendation; coreq: enrollment in full-year internship.

ED **430 Practicum: Elementary School Teaching** (7 or 14 cr). Only double program participants enroll for 7 cr. Supervised teaching in elementary schools. Graded P/F. Prereq: ED 312, 313, 314, EDTE 326, 336, 338, 420, admission to teacher education, cumulative GPA of 2.50, and perm of dept; coreq: ED 445. (Submit application to director of clinical experiences in teacher education by December 1 of school yr before enrolling.)

ED **431 Practicum: Secondary School Teaching** (7 or 14 cr). Only double program participants enroll for 7 cr. Supervised teaching in secondary schools. Graded P/F. Prereq: ED 312, 313, 314, EDTE 463, admission to teacher education, cumulative GPA of 2.50, and perm of dept; coreq: ED 445. (Submit application to director of clinical experiences in teacher education by December 1 of school yr before enrolling.)

ED **441 Multimedia** (3 cr). Design, development, and implementation of multimedia based curriculum. Three lec and 2 hrs of lab a wk.

ED **444 Telecommunications** (3 cr). See ITED 444.

ED **445 Proseminar in Teaching** (3 cr). Orientation to practicum, career placement, and entry-level teaching. Coreq: enrollment in senior practicum.

ED **468 Historical and Philosophical Foundations of Education** (3 cr). Events, leaders, ideas, and movements underlying development of education.

ED **542 Instructional Design** (3 cr). Technology based instructional design, development, evaluation, and revision of curriculum.

ED **543 Distance Education** (3 cr). Planning, implementation, and delivery of educational programming using a variety of distance education technologies.

ED **582 Introduction to Research Methods** (3 cr). Overview of research techniques including experimental, descriptive, analytical, single subject, and qualitative research; special emphasis on reading and understanding, interpreting and critically evaluating research articles; basic principles in planning, analyzing, and writing quantitative research studies. Prereq: graduate standing.

ED **583 Teacher as Researcher** (3 cr). Introduction to classroom research to explore practice, pedagogy, and student learning using qualitative methodology; self-study, action research, collaborative research, and classroom observation.

ED **585 Computer Systems for Educational Research** (3 cr). Educational applications of microcomputer and mainframe data analysis. Two lec and 2 hrs of lab a wk.

ED **586 Advanced Planning and Design of Quantitative Educational Research** (3 cr). Planning, analyzing, writing, and evaluating research studies appropriate for the dissertation; formulation of conceptual framework relative to analytical process; research designs and control of variables, and interpretation of data; preparation of research presentations and writing for publication. Prereq: ED 582, ED 585, Stat 401, or equiv.

ED **587 Seminar in Advanced Quantitative Research Methods** (3 cr). Understanding of design, analysis, and interpretation of educational research through review and critique of specific types of research studies; major focus on presentation of individual projects on the use of specific research design and analysis techniques. Prereq: ED 582, 585, 586, and a graduate statistics course.

ED **588 Introduction to Qualitative Research** (3 cr). Introduction to rationale, theoretical foundations, design, methods, and ethical issues in conducting qualitative research.

ED **589 Designing and Conducting Qualitative Research** (3 cr). Examination of data collection and analysis process, role of literature critique, survey of computer applications, and ethical issues. Prereq: ED 588 or perm.

ED **590 Qualitative Research: Critiquing Frameworks, Practice, and Application** (3 cr). Advanced qualitative research issues: methodologies, interpretation, formats and perspectives for reporting/publication, application, and ethics. Prereq: ED 589 or perm.

Educational Administration

Carolyn Keeler, Coordinator (UI Boise Center, 83712-7742; phone 208/364-4015).

EdAd **500 Master's Research and Thesis** (cr arr).

EdAd **501** (s) **Seminar** (cr arr). Prereq: perm.

EdAd **502** (s) **Directed Study** (cr arr). Prereq: perm.

EdAd **504** (s) **Special Topics** (cr arr). Prereq: perm.

EdAd **505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program.

EdAd **WS507 Educational Statistics** (4 cr). WSU EdPsy 508.

EdAd **ID&WS509 Educational Administration** (2-3 cr). WSU Ed Ad 580. Principles and problems of organization and administration of American education, including local, regional, and state systems.

EdAd **510 Strategic Planning for Educational Practitioners** (3 cr). Specifics included in both the discipline and process of strategic planning; team building, internal and external scanning, vision development, generating belief statements and exit outcomes, writing the mission statement, developing strategies to achieve organizational objectives, and establishing action plans.

EdAd **511 Planning and Administering the Curriculum** (3 cr). Management skills, concepts, and information needed to administer a district-wide curriculum; audits and other evaluations as part of the curriculum or program development cycle; duties and responsibilities of curriculum developers from a standpoint of several possible roles and assignments; criteria and basic concepts for an audit, including essential curriculum management components, alignment, quality control, standards, and data sources.

EdAd **521 Higher Education Administration and Governance** (3 cr). Administration in colleges and universities; history, basic systems of governance in different states, internal organizational structure, finance, student services, faculty, academic programs, affirmative action, and university relations.

EdAd **522 Higher Education Community College Function, Philosophy, and Organization** (3 cr). Overview of development of the community college in the U.S.; mission, role, philosophy, and organization of community colleges including comparative differences of junior colleges, universities, and other higher education institutions; exploration of curriculum and clientele of community colleges from historical, contemporary, and futures perspectives; emphasis on roles of community college administrators.

EdAd **523 Contemporary Issues in Higher Education** (3 cr). Analysis of leading current issues in postsecondary education, including but not restricted to tenure, research/teaching, extended learning-outreach programs, admission, retention, graduation requirements, and student-faculty evaluations.

EdAd **524 History and Philosophy of Higher Education in the U.S.** (3 cr). Exploration of history and philosophy of higher education from its origins to the present day; emphasis on trends and issues that have impacted higher education and contributed to its evolution.

EdAd **526 Student Services in Higher Education** (3 cr). Overview of administration of, and issues within, student affairs divisions of colleges and universities; includes organizational structures, philosophical underpinnings, history, relationship to missions of universities and colleges, and relationship to other divisions within universities and colleges.

EdAd **527 Ethics and Law in Higher Education** (3 cr). Comprehensive overview of salient legal issues that have a direct impact on postsecondary education; topics include judicial review process, agency/authority, labor relations/collective bargaining, Affirmative Action, Americans' Disability Act (ADA), accreditation, and the Land Grant university system.

EdAd **534 The Principalship** (3 cr). Prepare students for assuming the role of elementary or secondary school principal; emphasis on skills reqd for confidence in the role of principal.

EdAd **ID&WS535 School Finance** (3 cr). WSU Ed Ad 585. Theory and application of financing schools; application to Idaho schools. Prereq: EdAd 509.

EdAd **540 Middle School Curriculum and Program Management** (3 cr). Knowledge base about middle level educational programs, organizational patterns, instructional structures and practices; middle school and its essential characteristics; leadership roles of administrators, teachers, and counselors in middle school; future trends in middle level education.

EdAd **541 School Administrative Technology Applications** (2-3 cr). Potential and practicing school administrators will evaluate and analyze the increased efficiency and effectiveness of utilizing school administrative and instructional technology; knowledge of appropriate and efficient applications of the following: student scheduling; transportation scheduling and routing; school financial, personnel, payroll, accounting, and student records; curriculum management; student assessment analysis; electronic mail for both building and district systems; networking; evaluation of educational software; media center, electronic systems, and other technological applications to administrative functions.

EdAd **586 Advanced School Finance** (3 cr). Economic principles to provide insights into practical matters relating to school finance for principals, teachers, business managers, and other school officials; issues of educational productivity, allocation of resources, efficiency, equity, and liberty; review of basic accounting principles and requirements applying to both district and building levels. Prereq: EdAd 535.

EdAd **587 The Superintendency** (3 cr). Prepare students for assuming the role of superintendent of schools; emphasis on research-based role expectation and practical guidelines for superintendent behavior.

EdAd **588 Critique of Research** (2-3 cr). Research design and methods applicable to the dissertation; dissertation content, format, and style; primarily for educational administration doctoral students who have completed most of their course work; emphasis on review of educational administration doctoral dissertations and peer-reviewed literature. Prereq: Stat 251 or equiv, ED 582 or equiv, enrollment in a doctoral preparation program, or perm.

EdAd **589 Critical Thinking** (2-3 cr). Same as AdEd 589. For individuals curious about the thinking process; a variety of ways of learn about Vertical Thinking and Lateral Thinking; emphasis on practice using Lateral Thinking skills.

EdAd **590 Personnel Supervision and Evaluation** (3 cr). Designed to prepare administrators and others charged with employee supervision and evaluation to help improve school programs through effective supervision and evaluation of non-certificated and certificated personnel; total school improvement through effective hiring practices, staff development, coaching, teaming, providing employee performance feedback, and shared decision making practices; a variety of interpersonal, observational, and evaluative techniques are studied and practiced; emphasis on ongoing quality improvement for all personnel as well as intervention strategies for dealing with low performing staff members.

EdAd **591 Administration of Personnel** (3 cr). Selection, placement, and evaluation of teachers and administrators; salary schedules; school policies; teacher organizations and related matters.

EdAd **592 School-Community Relations** (3 cr). Interpreting the schools to the public, two-way flow of ideas between school and community.

EdAd **593 School Facilities Planning and Maintenance** (3 cr). Planning new school facilities; facility maintenance; legal provisions involving financing; preliminary surveys of need; relationships with architects and contractors.

EdAd **594 Theory in Educational Administration** (3 cr). Theories from psychology, sociology, and cultural points of view applied to school administration; problem solving/decision making; case study approach. Prereq: EdAd 509.

EdAd **596 Collective Negotiations for Teachers** (3 cr). Collective negotiations in public education; recognition of bargaining agent; appropriate unit; unit determination; representation and recognition procedures; scope and process of negotiations; bargaining and impasse procedures; collective agreements; impact of collective negotiations.

EdAd **598** (s) **Internship** (cr arr). Interns assigned for two semesters to practicing administrators in elementary or secondary schools or in district offices or in appropriate offices in higher education. Graded P/F. Prereq: approval of major professor and substantial completion of certification program.

EdAd **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm of major professor.

EdAd **600 Doctoral Research and Dissertation** (cr arr).

Electrical Engineering

David P. Egolf, Chair, Dept. of Electrical and Computer Engineering (214 Buchanan Engr. Lab. 83844-1023; phone 208/885-6554).

EE **204** (s) **Special Topics** (cr arr). Prereq: perm.

EE **210 Electrical Circuits I** (3 cr). Intro to d.c. and transient electrical circuits; mesh and nodal analysis; dependent sources; circuit theorems; transient analysis with differential equations. Three lec and one recitation a wk. Coreq: Math 310, Phys 212.

EE **211 Electrical Circuits Lab I** (1 cr). Lab to accompany EE 210. Lab experiments and computer simulations. One 3-hr lab a wk. Coreq: EE 210, Phys 212.

EE **212 Electrical Circuits II** (4 cr). Continuation of EE 210. Intro to sinusoidal steady state circuits; time and frequency domain analysis; Laplace and Fourier transforms and Fourier series; transfer functions, Bode plots, filters, transformers, polyphase circuits. Four lec and one recitation a wk. Prereq: EE 210, Math 310, Phys 212.

EE **213 Electrical Circuits Lab II** (1 cr). Lab to accompany EE 212. Continuation of EE 211. Lab experiments and computer simulations. One 3-hr lab a wk. Prereq: EE 211, Phys 212; coreq: EE 212.

EE **243 Digital Logic** (3 cr). Same as CoE 243. Number systems, truth tables, logic gates, flip-flops, combinational and synchronous sequential circuits using SSI, MSI, and programmable devices; intro to digital systems and basic microprocessor architecture; certification exam not reqd.

EE **244 Logic Circuit Lab** (1 cr). Same as CoE 244. Open lab to accompany EE 243. Design and construction of combinational and synchronous sequential logic circuits; certification exam not reqd. One 1-hr lec a wk.

EE **292 Sophomore Seminar** (0 cr). Curriculum options, elective courses, preparation for graduate study, and current technical topics. Field trip may be reqd. Graded P/F.

EE **313 Analog and Digital Engineering** (3 cr). Laplace transforms, filters, transducers, grounding, digital logic, A/D and D/A converters, microcontroller systems. Prereq: Engr 240.

EE **315**—see "Background Courses" below.

EE **316 Electronics I** (3 cr). Intro to application of electronic devices in electrical networks: diodes, rectifiers, power supplies, and thermal management; bipolar junction transistor principles, biasing, modeling and low-frequency, small signal applications; field effect transistor principles, biasing, modeling, and low-frequency, small-signal applications; operational amplifier fundamentals and applications. Prereq: EE 212, 213.

EE **317 Electronics I Lab** (1 cr). Lab to accompany or follow EE 316. Prereq or coreq: EE 316.

EE **318 Electronics II** (3 cr). Electronic amplifier frequency response (magnitude and phase); RC coupled amplifiers in cascade; large-signal amplifiers; implications of saturation and cut-off; feed-back amplifiers; intro to analog IC implementation. Prereq: EE 316, 317.

EE **319 Electronics II Lab** (1 cr). Lab to accompany or follow EE 318. Prereq or coreq: EE 318.

EE **320 Electric Machinery** (5 cr). Theory and application of electric machinery and transformers. Four lec and one 3-hr lab a wk. Prereq: EE 212, 213, Phys 212.

EE **321**—see "Background Courses" below.

EE **330 Electromagnetic Theory** (4 cr). Vector calculus; electrostatics, electrodynamics; electromagnetic waves in isotropic media; Maxwell's equations; boundary value problems. Prereq: Math 275, 310, Phys 212.

EE **331**—see "Background Courses" below.

EE **341**—see "Background Courses" below.

EE **350 Signals and Systems Analysis** (4 cr). Continuous and discrete, linear time-invariant systems; Laplace transforms; frequency transforms; Fourier series and transforms, DTFT and DFT; modulation; sampling and reconstruction; Z-transforms and discrete time systems. Prereq: EE 212 and Math 330.

EE **351**—see "Background Courses" below.

EE **398 Electrical Engineering Cooperative Internship** (1-3 cr, max arr). Supervised internship in industry in professional engineering settings, integrating academic study with work experience; requires weekly progress reports, a final written report, and a talk/presentation and additional details to be worked out with the faculty supervisor. Cannot be counted as a technical elective toward the B.S.E.E. or B.S.Comp.E. Graded P/F. Prereq: perm.

EE **401 Advanced Circuit Theory** (3 cr). Passive and active electrical networks; frequency response and complex frequency domain analysis, includes pole-zero considerations, root locus, and sensitivity functions. Prereq: EE 212, 213.

EE **404** (s) **Special Topics** (cr arr). Prereq: perm.

EE **J411/J511 Pulse and Digital Circuits** (3 cr). Electronic switching, timing, and pulse-shaping techniques; logic functions, realization with diodes, transistors, and FETs. Additional projects/assignments reqd for grad cr. Prereq: EE 316 and access to and familiarity with "SPICE" simulation programs.

EE **J412/J512 Active Filters** (3 cr). Second order, Butterworth, Chebychev, Elliptic and Bessel filter functions and active realizations for highpass, lowpass, bandpass, notch and all-pass filters; frequency and impedance scaling; frequency transformations; phase and group delay; filter sensitivity to passive and active elements; introduction to switched capacitor filters. Additional projects/assignments reqd for grad cr. Prereq: EE 318 or 401 or perm.

EE **J413/J513 Communication Circuits** (3 cr). Noise calculations and consideration in communication circuits, matching networks and impedance transformations, small signal HF amplifiers, sinewave oscillators, mixers and frequency changers, amplitude modulators and detectors, frequency modulators and discriminators, "linear" power amplifiers, tuned power amplifiers. Additional projects/assignments reqd for grad cr. Prereq: EE 318 and access to and familiarity with "SPICE" simulation program.

EE **J414/J514 Analog Integrated Circuit Analysis and Design** (3 cr). Extension of biasing and signal analysis, active current sources and loads, frequency response analysis and compensation techniques and analysis of currently available integrated circuits. Additional projects/assignments reqd for grad cr. Prereq: EE 316. (Alt/yrs)

EE **J415/J515 CMOS Analog Electronics** (3 cr). CMOS technology, modeling and subcircuits plus amplifier, comparator and converter analysis and design. Additional projects/assignments reqd for grad cr. Prereq: EE 318 or perm.

EE **416 Linear Integrated Circuit Applications** (3 cr). Theory and practical implementation of operational amplifiers, voltage regulators, video amplifiers, and special purpose integrated circuits such as modulators, demodulators, phase locked loops, nonlinear circuits, charge-transfer devices, transducers, and optoelectronic circuits. Prereq: EE 318 or perm.

EE **421 Introduction to Power Systems** (3 cr). Power and energy relationships in power systems, multiphase generators, lines and transformers; power system representation, network solution, and intro to symmetrical components. Prereq: EE 320.

EE **422 Power Systems Analysis** (3 cr). Principles of power flow, fault and stability analysis; computer methods; load flow and econ dispatch. Prereq: EE 421.

EE **ID&WS424 Power Electronic Circuits** (3 cr). WSU E E 486. Characteristics, limitations, and application of solid-state power devices; transistors and thyristors as power switching devices, gating techniques, snubbers; switch-mode power supplies, AC phase control, choppers, rectifiers, inverters, resonant converters, and practical aspects of converter design. Prereq: EE 318, EE 320.

EE **425 Power Electronics Lab** (1 cr). Measurement of operating characteristics of power semiconductors; experiments include testing of typical power converter circuits with emphasis on control, gating, protection requirements, and measurement techniques. Prereq or coreq: EE 424.

EE **432 Applications of Electromagnetic Theory** (3 cr). Maxwell's Equations; Poynting's vector and Poynting's Theorem; wave equation with solutions (vector and scalar, homogeneous and inhomogeneous), Helmholz equation; plane waves, reflection and refraction; introduction to classical electrodynamics, radiation from accelerated charges; introduction to antenna theory; transmission lines; waveguides and fiber optics; topics in wave propagation (microwave communication systems, wave propagation through the atmosphere, ionosphere, and magnetosphere, etc.). Prereq: EE 330 or perm.

EE **ID&WS433 Numerical Solutions to Electromagnetic Problems** (3 cr). WSU E E 417.

EE **J435/J535 High Frequency Circuits** (3 cr). Transmission line theory; microwave propagation; impedance matching; Smith chart analysis; N-port circuits; S-parameters; coupler, filter, transformer and power divider design. Prereq: EE 330 or perm.

EE **440 Digital Systems Engineering** (3 cr). Same as CoE 341. Design of digital systems using a hardware description language and field-programmable gate arrays; projects emphasize a top-down design process using software tools; topics include datapath optimization, pipelining, static and dynamic memory, technology issues, intra-system communication, and design for testability. Prereq: EE 243, 244, or perm.

EE **441 Computer Organization** (3 cr). Register and processor level design of computer systems including the design of the ALU, CPU controller, memory arrays, virtual memory, cache, I/O interfaces and interrupt structures; techniques for analyzing system performance; organization of computer networks. Prereq: EE 243.

EE **443 Microcontrollers** (4 cr). Same as CoE 361. Introduction to use of embedded microcontrollers and microprocessors; processor architecture; assembly language programming; use of development systems and/or emulators for system testing and debugging; software and hardware considerations of processor interfacing for I/O and memory expansion; programmed and interrupt driven I/O techniques. Three lec and five hrs of lab a wk. Prereq: EE 243 and 244.

EE **445 Introduction to VLSI Design** (3 cr). Same as CoE 445. Principles of design of very large scale integrated circuits; CMOS logic design; transistor sizing and layout methodologies; intro to IC CAD tools. Prereq: EE 316, 243 or perm.

EE **J449/549 Fault-Tolerant Systems** (3 cr). See CS J449/J549.

EE **452 Communication Systems** (3 cr). Introduction to modern communication systems; baseband pulse and data communication systems; communication channels and signal impairments; filtering and waveform shaping in the time and frequency domain; carrier-modulation for AM and FM transmission; bandpass digital and analog communication systems; comparison of system performance. Prereq: EE 350.

EE **453 Communication Systems Laboratory** (1 cr). Test and measurement techniques for communication systems and signal processing; experiments in the modulation and demodulation of information bearing signals. Three hrs of lab a wk. Coreq: EE 452.

EE **ID&WS455 Information and Coding Theory** (3 cr). WSU E E 451. Introduction to information theory; information content of messages; entropy and source coding; data compression; channel capacity data translation codes; fundamentals of error correcting codes; linear block and convolutional codes; introduction to trellis-coded modulation. Prereq: Math 330, Stat 301.

EE **470 Control Systems** (3 cr). Control system design, frequency and time domain methods; performance specifications; computer control and computer-aided design. Prereq: EE 350.

EE **471 Digital Control Systems** (3 cr). Design of digital control systems; sampling, A/D, and D/A conversion issues; time domain, frequency domain, and state space design methods; use of computer-aided design tools. Three lec a wk and approximately three 3-hr labs. Prereq: EE 470.

EE **476 Digital Filtering** (3 cr). Design methods for recursive and non-recursive filters; frequency domain characteristics; computer-aided design; applications. Prereq: EE 350.

EE **477 Digital Process Control** (3 cr). See ChE 445.

EE **480-481 Senior Design** (3 cr). Computer-aided techniques, economics, marketing, reliability, and patents; projects require original design, working model, and report. Two lec and one 3-hr lab a wk. Prereq for EE 480: EE 243, 244, 318, 319, 320, Stat 301, or perm. Prereq for EE 481: EE 330, 350, 480, or perm.

EE **486 Solid-State Electronics** (3 cr). Physical electronics; diode and transistor models; noise mechanics. Prereq: EE 330.

EE **491 Senior Seminar** (0 cr). Technical topics, employment practice, and interviewing. One lec a wk; one 3-6 day field trip may be required. Graded P/F.

EE **499** (s) **Directed Study** (cr arr). Prereq: perm.

EE **500 Master's Research and Thesis** (cr arr).

EE **501** (s) **Seminar** (cr arr). Prereq: perm.

EE **502** (s) **Directed Study** (cr arr). Prereq: perm.

EE **504** (s) **Special Topics** (cr arr). Prereq: perm.

EE **511 Pulse and Digital Circuits** (3 cr). See EE J411/J511.

EE **512 Active Filters** (3 cr). See EE J412/J512.

EE **513 Communication Circuits** (3 cr). See EE J413/J513.

EE **514 Analog Integrated Circuit Analysis and Design** (3 cr). See EE J414/J514.

EE **515 CMOS Analog Electronics** (3 cr). See EE J415/J515.

EE **520 Advanced Electrical Machinery** (3 cr). Synchronous machines and transformers, machine transient and subtransient reactances, excitation and voltage regulation, power curves, transformer connections, impedance, harmonics, and impulse characteristics. Prereq: EE 422.

EE **521 Power System Planning and Resources** (3 cr). Major decision-making and economic factors in electrical energy systems, planning and resource selection; hydroelectric, nuclear, and fossil fuel plants, steady state and transient stability, reliability, voltage levels, economic choices, and future resource potential. Prereq: EE 422 or perm.

EE **523 Symmetrical Components** (3 cr). Concepts of symmetrical components, sequence impedances of devices and lines, circuit equivalents for unbalanced faults, management during faults. Prereq: EE 422.

EE **524 Transients in Power Systems** (3 cr). Voltage transients; overvoltages during faults; recovery voltage characteristics; arc restrikes, switching surges, ferroresonance, and nonlinear phenomena. Prereq: EE 422.

EE **525 Power System Protection and Relaying** (3 cr). Power system faults and applicable relay systems; review of symmetrical components as applied to fault current and consideration of lightning and voltage surge protection. Prereq: EE 422 or perm.

EE **WS526 Protection of Power Systems II** (3 cr). WSU E E 511. Protection of electrical equipment as related to electric power systems with emphasis on digital algorithms. Prereq: EE 525 or perm.

EE **527 Dynamics and Control of AC Drives** (3 cr). Review of machine modeling techniques and simulation methods, principles of power converters for motor drive applications; analytical modeling and dynamic behavior of machine-drive systems; modulation, regulation, and control techniques; simulation of drive systems; case studies. Prereq: EE 320 and 470 or perm.

EE **528 Understanding Power Quality** (3 cr). Electrical fundamentals in the context of power quality; origins and characterization of power quality problems on distribution systems; applications of standards; advanced ground techniques; case study approach to common situations.

EE **529 Utility Applications of Power Electronics** (3 cr). HVdc transmission, static VAr compensators, FACTS devices, Custom Power devices, electrical energy storage systems, power quality, harmonic compensation, and alternative energy supply interfacing. Prereq: EE 422, 424.

EE **ID&WS530 Advanced Electromagnetic Theory** (3 cr). WSU E E 518. Maxwell's equations, potential theory, wave propagation and scattering, canonical problems, guided wave theory, antenna concepts, boundary value problems. Prereq: EE 432 or perm.

EE **533 Antenna Theory** (3 cr). Maxwell's equations, reciprocity, equivalence theorems; wire antennas, antenna arrays, aperture antennas; analysis and design techniques; hardware considerations. Prereq: EE 432 or perm.

EE **535 High Frequency Circuits** (3 cr). See EE J435/J535.

EE **WS536 Wave Propagation and Scattering** (3 cr). WSU E E 516.

EE **R538 EM Simulation** (3 cr). Computer simulation of electromagnetics using the finite-difference time-domain (FDTD) method; theory of finite-difference simulation, techniques for modeling EM propagation in lossy and dispersive media, boundary conditions for time-domain simulation. Prereq: perm.

EE **539 Advanced Topics in Electromagnetics** (3 cr). Topics include computational and analytical methods, remote sensing, nonlinear optics, guided wave theory, antenna theory. Prereq: EE 530 or perm.

EE **ID540 Asynchronous Circuit Design** (3 cr). WSU E E 554. Design and analysis of asynchronous digital circuits and systems; topics include: delays and hazards, state encoding, speed-independent and delay-insensitive circuits, micropipelines, and signal transition graphs. Prereq: EE 440 or perm.

EE **541 Advanced Computer Architecture** (3 cr). See CS 551.

EE **542 Digital Systems Testing** (3 cr). Fundamentals of testing and design for testability of digital electronic systems at both the module and board level; topics include circuit simulation, fault modeling and simulation, test pattern generation, design for testability, and built-in self-test. Prereq: EE 440 or equiv.

EE **545 VLSI Design** (3 cr). CMOS circuit techniques, analysis, modeling, performance, processing, and scaling; design of CMOS logic, gate arrays, data and signal processors, and memory. Prereq: EE 445.

EE **548 Supercomputing** (3 cr). Same as CoE 548. A perspective of supercomputing from Von Neumann machines to data flow machines; multiprocessors, multicomputers, multivector, multithreaded, superscalar, VLIW, and super pipelined architectures; memory organization; interconnection networks; and parallel languages and compilers. Prereq: computer architecture course and skills in at least one computer language, or perm.

EE **549 Fault-Tolerant Systems** (3 cr). See CS J449/J549.

EE **550 Communication Theory** (3 cr). Advanced topics in modern data communication; data transmission systems; transmission impairments; Nyquist signaling; introduction to information theory; data and channel coding; partial response signaling; maximum likelihood sequence estimation; error rates; sub-optimum probabilistic detection; equalization; Trellis-coded modulation. Prereq: EE 452 or perm.

EE **554 Information Theory I** (3 cr). Introduction to error control coding; finite field mathematics; polynomial fields; general theory of block codes; syndrome decoding; cyclic codes; encoders and decoders for cyclic codes; generator polynomials; BCH and Reed-Solomon codes; convolutional codes; the Viterbi algorithm; convolutional encoders and decoders; Trellis coded modulation. Prereq: EE 455 or 550 or perm.

EE **555 Information Theory II** (3 cr). Introduction to Shannon Theory; entropy, relative entropy, and mutual information; asymptotic equipartition; entropy rates of stochastic processes; data compression; channel capacity, differential entropy; the Gaussian channel, Lempel-Ziv coding, rate distortion theory. Prereq: EE 550 or 554 or perm.

EE **556 Adaptive Signal Processing** (3 cr). Theory and applications of adaptive signal processing; adaptive linear combiner; performance surfaces; adaptive optimization of performance by gradient search; learning curve behavior, adaptation rates, and misadjustment; applications to filtering, prediction, estimation, control, and neural networks. Prereq: EE 350, Math 330, EE 452 or 476 or 477, or perm.

EE **559 Advanced Topics in Communication Systems** (1-3 cr, max arr). A selection of advanced topics from new research areas in communication systems; a representative selection of topics includes: recent developments in coding and information theory, image compression, cellular and mobile communication systems, magnetic recording, satellite communication systems, spread-spectrum modulation, set-membership theory, clock and carrier recovery methods, and communication channel modeling. Prereq: EE 452 or perm.

EE **ID&WS570 Random Signals** (3 cr). WSU E E 507. Probability, random variables, and random signals in engineering systems; stochastic calculus, stationarity, ergodicity, correlation, and power spectra; propagation of random signals through linear systems; Kalman filter theory and applications. Prereq: EE 350 and Stat 301 or 451, or perm.

EE **571 System Identification** (3 cr). Identification of dynamic system models from test data; methods to be considered include least-squares, prediction error, maximum likelihood, instrumental variables, correlation, and extended Kalman filter; practical applications and computer-based exercises emphasized within a mathematically rigorous framework. Prereq: EE 570 or perm.

EE **ID&WS572 Linear System Theory** (3 cr). WSU E E 501. Same as ME 580. Linear spaces and linear operators; descriptions of dynamic systems; input-output descriptions; state-space concepts; canonical forms; controllability and observability; minimal realizations; application to control and general systems analysis; pole assignment; observers. Prereq: EE 470 or equivalent.

EE **573 Fuzzy Logic Control Systems** (3 cr). See ME 581.

EE **ID&WS574 Optimal Control Theory** (3 cr). WSU E E 502. Same as ME 575. Intro to optimization, parameter optimization, optimization of dynamic systems, optimization of dynamic systems with path constraints, optimal feedback control and dynamic programming, linear quadratic regulators, second variation methods, singular control problems, differential games. Prereq: EE 572 or perm.

EE **575 Advanced Vibrations** (3 cr). See ME 572.

EE **576 Digital Signal Processing** (3 cr). Characteristics of discrete time signals; design of digital filters with applications; advanced digital signal processing algorithms; discrete time spectral analysis; introduction to 2D processing. Prereq: EE 476 or perm.

EE **577** (s) **Advanced Topics in Control Systems** (3 cr). Same as ME 582. Selection of advanced topics from new research areas in control systems; a representative selection of topics would include: adaptive, LOG/LTR, robust, nonlinear, fuzzy, and neural network control methods. Prereq: EE 572 or perm.

EE **578 Neural Network Design** (3 cr). Same as ME 578. Introduction to neural networks and problems that can be solved by their application; introduction of basic neural network architectures; learning rules are developed for training these architectures to perform useful functions; various training techniques employing the learning rules discussed and applied; neural networks used to solve pattern recognition and control system problems. Prereq: perm.

EE **579 Engineering Acoustics** (3 cr). See ME J413/J513.

EE **591 Electrical Engineering Research Colloquium** (0 cr). Graded P/F. Weekly colloquia on topics of general interest in electrical engineering and related fields; speakers will be from UI Electrical Engineering Department, other departments on campus, WSU, the local community, and outside agencies and universities.

EE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

EE **600 Doctoral Research and Dissertation** (cr arr).

BACKGROUND COURSES

These are not introductory-level courses. They are intended for engineers and scientists whose previous degrees are not in electrical engineering from ABET/EAC-accredited programs, who need to remove deficiencies before beginning graduate studies in electrical engineering.

EE **315 Background Study in Electronics** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of electronics (EE 316) deficiency for grad students who do not have BSEE background. See EE 316 for description. Graded P/F based on comprehensive exam at completion of course. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

EE **321 Background Study in Electrical Machines** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of electrical machinery (EE 320) deficiency for grad students who do not have BSEE background. See EE 320 for description. Graded P/F based on comprehensive exam at completion of course. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

EE **331 Background Study in Electromagnetic Theory** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of electromagnetic theory (EE 330) deficiency for grad students who do not have BSEE background. See EE 330 for description. Graded P/F based on comprehensive exam at completion of course. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

EE **341 Background Study in Digital Computer Fundamentals** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of digital computer fundamentals (EE 243) deficiency for grad students. See EE 243 for description. Graded P/F.

EE **351 Background Study in Signals and Systems Analysis** (3 cr). Not applicable toward any UI undergrad degree; valid only for removal of signals and systems analysis (EE 350) deficiency for grad students who do not have BSEE background. See EE 350 for description. Graded P/F based on comprehensive exam at completion of course. Prereq: passing grade on Dept of Electrical Engineering's upper-division qualifying exam.

Engineering—General

David E. Thompson, Dean (125 Janssen Engr. Bldg.; 208/885-6479); Howard S. Peavy, Associate Dean; Steven G. Penoncello, Interim Associate Dean.

Engr **102 Introduction to Engineering** (2 cr). Offered summer only for students in the Summer Start Program. Introduction to engineering disciplines and careers; techniques for analyzing and solving engineering problems. May include field trips and/or projects. Credits may not count toward graduation in some departments.

Engr **ID&WS105 Engineering Graphics** (2 cr). WSU M E 103. Freehand and computer aided drawing in pictorial and orthographic projection; section and auxiliary views; descriptive geometry; graphical presentation of data; scales, dimensioning, and measurements. Two lec and one 2-hr lab a wk.

Engr **ID&WS210 Engineering Statics** (3 cr). WSU C E 211. Principles of statics with engineering applications; addition and resolution of forces, vector algebra, moments and couples, resultants and static equilibrium, equivalent force systems, centroids, center of gravity, free body method of analysis, two and three dimensional equilibrium, trusses, frames, and friction. Prereq: Math 170.

Engr **ID&WS220 Engineering Dynamics** (3 cr). WSU M E 212. Particle and rigid body kinematics and kinetics; rectilinear, curvilinear, and relative motion, equations of motion, work and energy, impulse and momentum, systems of particles, rotation, rotating axes, rigid body analysis, angular momentum, vibration, and time response. Prereq: Engr 210.

Engr **240 Introduction to Electrical Circuits** (3 cr) (EE 207). Not open for credit to electrical engineering majors. Circuit analysis, transient and steady state behavior, resonant systems, system analysis, and power and energy concepts; elementary differential equations will be introduced to solve basic transient problems. Prereq: Math 175, Phys 211.

Engr **ID&WS320 Engineering Thermodynamics and Heat Transfer** (3 cr). WSU M E 301. First and second laws of thermodynamics; thermodynamic processes; thermodynamic properties; flow processes; conversion of heat into work; conduction, convection, radiation, and heat exchangers. Prereq: Engr 210; coreq: Math 310.

Engr **ID&WS335 Engineering Fluid Mechanics** (3 cr). WSU M E 303. Physical properties of fluids; fluid statics; continuity, energy, momentum relationships; laminar and turbulent flow; boundary layer effects; flow in pipes, open channels, and around objects. Prereq: Engr 210, Math 275.

Engr **ID&WS350 Engineering Mechanics of Materials** (3 cr). WSU C E 215. Elasticity, strength, and modes of failure of engineering materials; theory of stresses and strains for ties, shafts, beams, and columns. Prereq: Engr 210, Math 275; coreq: Math 310.

Engr **ID&WS360 Engineering Economy** (3 cr). WSU C E 463. Economic analysis and comparison of engineering alternatives. Prereq: jr standing.

Engineering Management

James H. Milligan, Chair, Dept. of Civil Engineering (104 Buchanan Engr. Lab. 83844-1022; phone 208/885-6782).

EM **510 Engineering Management Fundamentals** (3 cr). Fundamental principles of engineering management addressing management theory applied to the engineering environment; management processes and techniques; attitudes that facilitate the leadership role of the engineering manager in an engineering organization; team-taught by business and engineering faculty. Prereq: perm.

EM **581 Project Planning and Monitoring** (3 cr). Formalized procedures, tools, and techniques used in conceptual and detailed planning of the project; application of project data in monitoring the project progress and in formulating remedial actions in response to unexpected occurrences; evaluation and ranking of the entire project after the deliverables have been accepted by the client. Prereq: CE 482.

EM **582 Project Estimating and Cost Management** (3 cr). Procedures used in developing the project estimate during the planning stages, and updating the estimate throughout the project life-cycle; tools and techniques used in monitoring, managing, and controlling the cost of the project; procedures used in managing the project resources in order to minimize the cost of the project. Two lec and 3 hrs of lab a wk. Prereq: EM 581.

EM **583 Managing Project Scope, Schedule, and Risks** (3 cr). Procedures used in developing the project schedule during the planning stages, and updating the schedule during the project life-cycle; tools and techniques used in monitoring, managing, and controlling the duration of the project; procedures used in managing the balance between the cost, duration, and quality of the project, evaluation and management of project risks. Two lec and 3 hrs of lab a wk. Prereq: EM 581.

EM **584 Bidding and Contract Management** (3 cr). Elements of the bidding process; procedures used in developing the bid based on the estimate and on the market conditions; review of elements of the contract; using the contract as a guide during the project life-cycle for partial payments, additional payments, and resolution of unusual occurrences. Two lec and 3 hrs of lab a wk. Prereq: CE 484, EM 581.

EM **586 Software-Assisted Project Management** (3 cr). Characteristics and features of project management software; procedures and techniques used in identifying software features that are necessary for recording project plans and for reporting project progress; process of selecting project management software that is consistent with the organization's procedures and requirements; evaluation of the modeling capabilities of a system in estimating and scheduling specific case studies of engineering projects. Two lec and 3 hrs of lab a wk. Prereq: EM 582, 583, 584.

English

Douglas Q. Adams, Chair, Dept. of English (200 Carol Ryrie Brink Hall 83844-1102; phone 208/885-6156).

ADVANCED PLACEMENT: Courses in this subject field that are vertical in context are: Eng 101-102.

PREREQUISITES: Students may enroll for a second-semester course in English without having had the first-semester course, unless it is a stated prerequisite to the second-semester course. Engl 101 and 102 are prerequisite to all upper-division courses. A transfer student who lacks Engl 101 or 102, or both, may take either or both for credit even though he or she has already taken a literature course for which Engl 101 or 102 is prerequisite at UI. Engl 210 is a prerequisite or corequisite for all English majors and English education majors to all courses numbered 300 and above.

Engl **090 Developmental Writing** (0 cr). A basic skills course to prepare students for Engl 101. Graded P (pass)/N (repeat)/F (fail).

Engl **101 Introduction to College Writing** (3 cr). Workshop on strategies for generating ideas for writing, for planning and organizing material, and for revising and editing; intended to prepare students for the demands of college writing, focusing on reading critically and incorporating source material. Graded P (pass)/N (repeat)/F (fail). Prereq: Engl 090 or equiv.

Engl **102 College Writing and Rhetoric** (3 cr). Applied principles of expository and argumentative essay writing, including summaries, critiques, and syntheses of texts, and the research essay; emphasis on clear, concise, and vigorous prose. Graded A/B/C/N (repeat)/F. Prereq: Engl 101 or equiv.

Engl **175 Introduction to Literature** (3 cr). Basic course in literary genres (novel, drama, poetry) to provide the general student with the terminology and standard techniques of literary explication.

Engl **201 English Grammar: Key Concepts and Terms** (1 cr). Study of grammar and grammatical concepts; terms and concepts drawn from traditional and transformational grammar; includes practice in sentence diagramming with connections drawn to other grammatical systems. Not an ESL course and not remedial.

Engl **204** (s) **Special Topics** (cr arr). Prereq: perm.

Engl **207** (s) **Persuasive Writing** (3 cr). May be used as core credit in J-3-a. Intermediate course in the practices of writing to persuade with special emphasis on current issues and audience awareness; includes research-based writing. Prereq: Engl 102 or equiv.

Engl **208** (s) **Personal and Exploratory Writing** (3 cr). May be used as core credit in J-3-a. Intermediate course in the practices of personal and exploratory writing; may include personal narrative and observation, autobiography, or extended reflection; special attention to prose style and voice; includes research-based writing. Prereq: Engl 102 or equiv.

Engl **209** (s) **Inquiry-Based Writing** (3 cr). May be used as core credit in J-3-a. Intermediate course in the uses of writing to explore and stake out intellectual positions; special emphasis on the nature of evidence used to develop and support knowledge claims in specific fields. Prereq: Engl 102 or equiv.

Engl **210 Reading - Writing - Texts** (3 cr). Examines methods and assumptions guiding the analysis and interpretation of a variety of literary texts; requires extensive critical reading and writing. Prereq: Engl 102 or equiv.

Engl **257-258 Literature of Western Civilization** (3 cr). May be used as core credit in J-3-d. Masterpieces reflecting development of Western thought and culture. Engl 257: Classical Greece to the Renaissance. Engl 258: 17th century to the present.

Engl **291 Creative Writing: Poetry** (3 cr). Intro to techniques of writing poetry. Graded P/F.

Engl **292 Creative Writing: Fiction** (3 cr). Intro to techniques of writing fiction. Graded P/F.

Engl **295** (s) **Seminar in Literary Studies** (3 cr). Introductory seminar devoted to topics, issues, and methods of inquiry in literary studies; topics vary and will be announced in the *Time Schedule*; requires extensive critical reading and writing. Prereq: Engl 102 or equiv.

Engl **301** (s) **Special Topics** (cr arr). Variable content course covering special topics of contemporary interest. Topics and number of cr will be announced in the *Time Schedule.*

Engl **309 Advanced Prose Writing** (3 cr). Theory and practice in writing prose; many assignments in expression, explanation, and persuasion. Prereq: Engl 102 or equiv.

Engl **313 Business Writing** (3 cr). Principles of clear writing related to business style; correspondence and reports; form, content, and style. Prereq: Engl 102 or equiv; jr standing or perm.

Engl **317 Technical and Engineering Report Writing** (3 cr). May be used as core credit in J-3-a. Principles of clear writing related to technical style; problems such as technical description, proposals, formal reports, and technical correspondence. Prereq: Engl 102 or equiv; jr standing or perm.

Engl **321 The Novel for Nonmajors** (3 cr). Major novels from the 18th century to the present.

Engl **325 Contemporary Literature for Nonmajors** (3 cr). Current poetry, drama, and prose; emphasis on U.S. authors.

Engl **341-342 Survey of British Literature** (3 cr). Engl 341: Beowulf to Samuel Johnson. Engl 342: Robert Burns to contemporary writers.

Engl **343-344 Survey of American Literature** (3 cr). Engl 343: Colonial beginnings to the Civil War. Engl 344: Post-Civil War to contemporary writers.

Engl **345 Shakespeare** (3 cr). Introductory course; background and study of selected plays representative of Shakespeare's achievement.

Engl **375 The Bible as Literature** (3 cr). Same as RelS 375. Literary qualities of the Bible.

Engl **380 Introduction to U.S. Ethnic Literatures** (3 cr). Emphasis on U.S. minority writers and reading across cultures; selections will vary from semester to semester.

Engl **391 Intermediate Poetry Writing** (3 cr). Intermediate poetry writing workshop; emphasis on workshop approach, development of portfolio, continued reading in poetry. Prereq: Engl 291 or perm.

Engl **392 Intermediate Fiction Writing** (3 cr). Intermediate fiction writing workshop; emphasis on workshop approach, development of portfolio, continued reading in fiction. Prereq: Engl 292 or perm.

Engl **400** (s) **Seminar** (cr arr). Prereq: perm.

Engl **401 Writing Workshop for Teachers** (3 cr). Enrollment limited to juniors or seniors majoring or minoring in secondary English education or English (with certification) or to senior elementary education majors; others may enroll with permission of the instructor. Theory and practice of jr/sr high school composition instruction; further development of student's own writing skills. Three lec and one lab a wk.

Engl **402 Internship in Tutoring Writing** (3 cr). Theoretical and practical issues involved in tutoring writing; directed experience tutoring students across the disciplines. Graded P/F. Prereq: Engl 102 or equivalent and perm.

Engl **404** (s) **Special Topics** (cr arr). Prereq: perm.

Engl **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Engl **421 Development of the English Novel** (3 cr). Major writers from the beginnings to Scott.

Engl **422 The Nineteenth-Century English Novel** (3 cr). Dickens to Hardy.

Engl **425 Irish Literary Renaissance** (3 cr). Literature of Ireland after 1880, especially Yeats, Joyce, and Synge.

Engl **426 Modern Poetry** (3 cr).

Engl **427 American Fiction, 1914-1945** (3 cr). Fiction by writers such as Cather, Dos Passos, Faulkner, Fitzgerald, Hemingway, and Wright.

Engl **428 British Fiction, 1900-1945** (3 cr). Fiction by such writers as Conrad, Forster, Joyce, Lawrence, and Woolf.

Engl **429 Contemporary Fiction** (3 cr). Fiction since 1945 by writers such as Barth, Bellow, Fowles, Lessing, Morrison, Nabokov, and Pynchon.

Engl **430 Perspectives in Film** (3 cr). Same as Comm 430. Survey of major principles and methods of film criticism as they relate to development of film art from 1890 to the present. Prereq: Intr 126 or Comm 288 or perm.

Engl **433 Chaucer** (3 cr). Intro to Chaucer's poetical works.

Engl **434 Middle English Literature** (3 cr). Middle English literature to 1500, excluding Chaucer and drama.

Engl **436 Advanced Shakespeare** (3 cr). Intensive study of a number of plays grouped according to mode, kind, theme, or the dramatist's dev. Prereq: Engl 345 or perm.

Engl **437 English Drama to 1642** (3 cr). Medieval through renaissance drama, emphasis upon Marlowe, Jonson, Webster.

Engl **441 Introduction to the Study of Language** (3 cr). Same as Anth 441. Surveys of sound patterns, morphological processes and syntactic structures; questions of language acquisition, variation, and history; exercises from a variety of languages, with emphasis on American English.

Engl **442 Introduction to English Syntax** (3 cr). Structure and processes of English syntax; syntax as component of style. Prereq or coreq: Engl 441 or perm.

Engl **443 Language Variation** (3 cr). Geographic and social dialects (e.g., black English), levels of formality and their linguistic consequences; literary use of language variation (as in Dickens and Hardy, Twain and Faulkner); occupational dialects and jargons. Prereq or coreq: Engl 441 or perm.

Engl **445 Literature for Adolescents** (3 cr). Theory and practice of literature study in secondary schools, and appraisal of literature appropriate to the needs, interests, and abilities of adolescents. Prereq: enrollment in a program leading to certification in secondary English or elementary ed (elementary ed majors must have completed 6 cr of literature and EDTE 338; students in secondary ed programs must have completed 9 cr of literature); or perm.

Engl **448 Psycholinguistics** (3 cr). Same as Psyc 448. Survey of cognitive processes of language comprehension, language/speech production, and language acquisition. Prereq: Engl or Anth 441, Psyc 101.

Engl **451 Sixteenth-Century Poetry and Prose** (3 cr). Major authors of the period with emphasis on Spenser.

Engl **452 Milton** (3 cr). Major prose and poetry of Milton.

Engl **453 Seventeenth-Century Poetry and Prose** (3 cr). Major authors excluding Milton; emphasis on Bacon, Browne, Burton, Donne, Herbert, Herrick, Marvell.

Engl **456 Restoration and Eighteenth Century** (3 cr). Neoclassical poetry and prose from Dryden to Johnson.

Engl **465 The Romantic Period** (3 cr). Poetry and prose of the early 19th century; emphasis on Blake, Wordsworth, Coleridge, Shelley, Keats, Byron.

Engl **466 The Victorian Period** (3 cr). Poetry and prose; emphasis on Tennyson, Browning, Arnold, Carlyle, Newman, J. S. Mill.

Engl **470 American Literature to 1830** (3 cr). Colonial period to the early republic; emphasis on Bradford, Bradstreet, Taylor, Edwards, Franklin, Cooper, Irving.

Engl **471 Poe, Hawthorne, and Melville** (3 cr). Major works and their place in the American Renaissance.

Engl **472 Emerson, Thoreau, and Whitman** (3 cr). Major works and their place in the American Renaissance.

Engl **473 Literature of the American West** (3 cr). Writings that reflect the growth of the western U.S. from frontier days to the present.

Engl **474 American Literature, 1865-1914** (3 cr). Writers of realistic and naturalistic fiction such as James, Twain, Wharton, and Dreiser, and poets such as Whitman and Dickinson.

Engl **480 Ethnic and Minority Literature** (3 cr). Texts by ethnic and minority writers, primarily but not exclusively American; e.g., Black, Native American, Chicano, Asian American, Black South African.

Engl **481 Women's Literature** (3 cr). Same as FLEN 481. Literature by women; genres, nationalities, and historical periods may vary from semester to semester.

Engl **482** (s) **Major Authors** (3 cr, max arr). Comprehensive study of the works of a single author. See the *Time Schedule* for author.

Engl **483 Black Literature** (3 cr). Major works of U.S. Black writers; emphasis on the 20th century.

Engl **484 American Indian Literature** (3 cr). Recent poetry and prose written by and about American Indians.

Engl **491 Advanced Creative Writing: Poetry** (3 cr, max arr). Continuation of Engl 391. Prereq: Engl 391 or perm.

Engl **492 Advanced Creative Writing: Fiction** (3 cr, max arr). Continuation of Engl 392. Prereq: Engl 392 or perm.

Engl **495 Literary Criticism** (3 cr). From Plato to the present.

Engl **496 History of the English Language** (3 cr). Evolution of the language from Proto-Germanic to American English. Prereq: Engl 441 or perm.

Engl **J498/J598** (s) **Internship** (1-3 cr, max 6). Graded P/F. Supervised experience in professional uses of English. Additional projects/assignments reqd for grad cr. Prereq: perm of director of grad studies or director of undergrad studies, Dept of English.

Engl **499** (s) **Directed Study** (1-3 cr, max 3). Prereq: perm.

Engl **500 Master's Research and Thesis** (cr arr). Graded P/F.

Engl **501** (s) **Seminar** (cr arr). Prereq: perm.

Engl **502** (s) **Directed Study** (1-3 cr, max 3). Normally offered in English and American literature and in linguistics; may not duplicate course offerings. Graded P/F. Prereq: perm.

Engl **504** (s) **Special Topics** (cr arr). Prereq: perm.

Engl **505** (s) **Workshop** (cr arr). May be graded P/F. Prereq: perm.

Engl **506 Language and Teaching of Writing** (3 cr). Linguistic, rhetorical, stylistic, and pedagogical concepts essential to teaching college-level writing.

Engl **507 Phonetics and Phonology** (3 cr). Study of the physiology of speech-sound production and hearing, including their description, transcription, production, and discernment, and of the psychology of speakers of a language as they make systematic use of the speech-sounds available to them; diagnosis of errors of non-native speakers.

Engl **508 MAT Project** (3 cr). Graded P/F.

Engl **509** (s) **Creative Writing** (3 cr, max 12). Workshop for advanced writers; analysis of theory, composition, and techniques with applied goal of extending technical skills of the student writer through study of professional writers' work. All applicants must submit typed manuscripts of their work at least 10 days before registration. Prereq: perm.

Engl **ID510** (s) **Studies in Linguistics** (3 cr, max 12). WSU Engl 541. Topics such as phonology, morphology, syntax, linguistic history, or the application of linguistics to the teaching of English literature or composition. Prereq: 6 cr in the following: Engl 441, 442, 443, 496, 506, or perm.

Engl **511** (s) **Studies in Literary Criticism** (3 cr, max 12). History of criticism; various schools of literary criticism. Prereq: Engl 495 or perm.

Engl **512** (s) **Studies in Literary Theory** (3 cr, max 12). Various genres (poetry, drama, fiction), forms, and modes (tragedy, comedy, satire).

Engl **ID513 ESL Methods I: Basic Oral/Aural Skills** (3 cr). WSU Engl 544. Survey of most widely used classroom techniques for developing speaking and listening skills in a second language; alternative innovative approaches. Prereq: Engl 441 or perm. (Alt/yrs)

Engl **WS514 ESL Methods II: Reading, Writing, and Special Purpose English** (3 cr). WSU Engl 544. Survey of most widely used classroom techniques for developing reading and writing skills in a second language and teaching techniques to specialized professional programs. Prereq: Engl 441 or perm. (Alt/yrs)

Engl **ID515 ESL Teaching Practicum** (3 cr). WSU Engl 544. Organization and teaching of an ESL course under direction of practicum instructor. Graded P/F. Prereq: Engl 514 or perm. (Alt/yrs)

Engl **ID516 Intercultural Communication** (3 cr). WSU Engl 544. In-depth examination of major issues related to communication across cultures: communication theory, linguistic relativity, ethnography of speech, crosscultural rhetoric, and nonverbal communication. Prereq: Engl 441 or perm. (Alt/yrs)

Engl **ID517 Contrastive Linguistics** (3 cr). WSU Engl 543. Theory and practice of comparing and contrasting linguistic systems as basis for preparing instructional materials. Prereq: Engl 441 and one of the following: Engl 442, 443, 496, 510, or perm. (Alt/yrs)

Engl **ID518 Advanced English Grammar** (3 cr). WSU Engl 543. In-depth linguistic analysis of English grammar, giving special emphasis to morphology and syntax. Prereq: Engl 441 or perm (recommended preparation: Engl 442).

Engl **ID519 Linguistic Analysis** (3 cr). WSU Engl 543. Advanced work in analysis and description of phonology, morphology, and syntax of languages. Prereq: Engl 441 or perm (recommended preparation: Engl 442).

Engl **520** (s) **Studies in Medieval Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **530** (s) **Studies in Renaissance and 17th-Century British Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **540** (s) **Studies in Restoration and 18th Century British Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **WS543 Topics in English Linguistics** (3 cr, max 6). WSU Engl 543.

Engl **550** (s) **Studies in 19th-Century British Literature** (3 cr, max 12). Normally offered in survey of Romantic literature, survey of Victorian literature, genre studies, and major author(s).

Engl **560** (s) **Studies in American Literature Before 1900** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **570** (s) **Studies in 20th-Century British and American Literature** (3 cr, max 12). Normally offered in period survey, genre studies, and major author(s).

Engl **590 Creative Process** (3 cr). Advanced seminar in the exploration and study of the universal and the individual elements of the writer's creative process. Prereq: graduate student status.

Engl **591 Advanced Poetry Writing** (3 cr, max 9). Advanced poetry writing workshop. Prereq: graduate level only; perm by manuscript screening.

Engl **592 Advanced Fiction Writing** (3 cr, max 9). Advanced fiction writing workshop. Prereq: graduate level only; perm by manuscript screening.

Engl **593 Writing Literary Non-fiction** (3 cr, max 9). Seminar on the evolving genre of "literary non-fiction": using modes of fiction, drama, and poetry for nonfictive aims, such as memoirs or autobiography, travel narrative, and character sketch; workshop on participants' writing in the genre. Prereq: graduate level only; perm by manuscript screening.

Engl **594 Editing and Publishing** (3 cr). Workshop on preparing creative, scholarly, and popular manuscripts for publication; emphasis on practical experience in designing, editing, and producing literary magazines.

Engl **597** (s) **Practicum** (3 cr, max 6). Prereq: perm.

Engl **598** (s) **Internship** (1-3 cr). See Engl J498/J598.

Engl **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Entomology

Michael J. Weiss, Head, Dept. of Plant, Soil, and Entomological Sciences (242 Iddings Wing, Ag. Sc. Bldg. 83844-2339; phone 208/885-6277; pseshead@uidaho.edu).

Ent **110 Insects and Humans** (2 cr). Introduction to anatomy, taxonomy, and biology of insects; learning how insects interact with humans in terms of agriculture, medicine, daily life, and the development of human cultures.

Ent **211 General Entomology** (4 cr). May be used as core credit in J-3-b. Same as Biol 211. Structure, development, classification, habits, and ecology of insects. Three lec and one 3-hr lab a wk.

Ent **322 Economic Entomology** (3 cr). Identification, biology, and importance of insects and related arthropods to humans and agriculture; basic principles of arthropod pest management. Two lec and one 3-hr lab a wk.

Ent **WS348 Forest Entomology** (2 cr). WSU Entom and NATRS 348. Course available only to students at off-campus locations.

Ent **WS361 Honey Bee Biology** (1 cr). WSU Entom 361. Biology of the honey bee including behavior, genetics, pollination, sociality, and beekeeping practices.

Ent **WS362 Fundamentals of Beekeeping** (1 cr). WSU Entom 362. Applied beekeeping practices including safety, equipment, colony installation, manipulation for pollination and honey production, honey bee diseases and pests.

Ent **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

Ent **400** (s) **Seminar** (cr arr). Prereq: perm.

Ent **WS401 Invertebrates in Biological Thought** (3 cr). WSU Entom 401. Development of historical ideas and knowledge from antiquity to present with emphasis on major advances achieved through invertebrate models.

Ent **404** (s) **Special Topics** (cr arr). Prereq: perm.

Ent **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Ent **WS-J426/WS-J526 Population Analysis** (1 cr). WSU Entom 526.

Ent **WS-J429/WS-J529 Principles of Population Dynamics** (1 cr). WSU Entom 429/529.

Ent **438 Pesticides in the Environment** (3 cr). See Soil 438.

Ent **WS-J439/WS-J539 Insect-Plant Interactions: Population Dynamics** (1 cr). WSU Entom 477/577.

Ent **J440/J540 Insect Identification** (4 cr). Survey of approximately 200 major families; collecting and preservation techniques. For grad cr, an additional 50 families and selected subfamilies and genera will be covered and a term paper is reqd. Two lec and two 2-hr labs a wk; two 1-day field trips. Prereq: Ent 211 or perm. Alt/yrs.

Ent **ID-J441/ID-J541 Insect Ecology** (3 cr). WSU Entom 541. Population and community dynamics set in a systems framework; theory and applications in natural and altered systems. Requirements for graduate credit include a longer (10 vs. 5 pages), more synthetic term paper, and each 500-level student will lead a web-based or in-class discussion on a research paper of their choice. Two 1-day field trips. Prereq: Ent 211 and general ecology or perm.

Ent **WS443 Insect Ecology** (3 cr). WSU Entom 443. (Alt/yrs)

Ent **ID-J445/ID-J549 Insect-Plant Interactions** (3 cr). WSU Entom 445. Ecology, evolution, and mechanisms of the interactions between insects and plants. Requirements for graduate credit include formal report of field study, term paper. Prereq: Ent 211. (Alt/yrs)

Ent **ID-J446/ID-J546 Host Plant Resistance to Insects and Pathogens** (3 cr). WSU Entom 446/546. Principles and methodologies for developing pest-resistant crop varieties. Requirements for graduate credit include preparation of grant proposal, classroom presentation. Field trips. Prereq: Ent 211 or perm. (Alt/yrs)

Ent **ID-J447/ID-J547 Fundamentals of Biological Control** (2 cr). WSU Entom 447/547. Intro to history and development of biological control and biological and ecological factors involved; emphasis on entomophagous and phytophagous insects. Semester project required for all students; for graduate credit, students present a paper or "grant proposal" for critique. Prereq: Ent 211 and general ecology or perm. (Alt/yrs)

Ent **WS448 Medical Entomology** (2 cr). WSU Entom 448. (Alt/yrs)

Ent **WS449 Veterinary Entomology** (1 cr). WSU Entom 449. Aspects of medical entomology as they apply to warm-blooded, non-human animals.

Ent **J451/ID&WS-J551 Applied Biological Control: Weeds** (1 cr). WSU Entom 551. Principles and methodologies in biological control of weeds. Requirements for graduate credit include leading a classroom presentation and discussion session. Prereq: one ecology course, Principles of Biological Control or perm. (Alt/yrs)

Ent **J452/ID&WS-J552 Applied Biological Control: Arthropod Pests** (1 cr). WSU Entom 552. Principles and methodologies in biological control of insect and mite pests. Requirements for graduate credit include paper. Prereq: one ecology course, Principles of Biological Control or perm. (Alt/yrs)

Ent **J453/ID-J553 Applied Biological Control: Microbial Control** (1 cr). WSU Entom 553. Principles and methodologies of microbial control of insect pests, weeds, and plant pathogens in agriculture and forestry. Requirements for graduate credit include leading a class presentation and discussion session. Prereq: one course in microbiology, plant pathology, or entomology, and Principles of Biological Control or perm. (Alt/yrs)

Ent **ID-J472/ID-J572 Aquatic Entomology** (3 cr). WSU Entom 472. Identification and biology of insects associated with aquatic and subaquatic environments. Asdditional projects/ assignments required for graduate credit. One lec and two 3-hr labs a wk; two 1-day field trips.

Ent **WS480 Urban Entomology** (2 cr). WSU Entom 380. Management and biology of urban pests in home, landscape, and recreational environments.

Ent **J484/J584 Insect Anatomy and Physiology** (4 cr). Same as Zool 494. Organ systems of insects and their functions. A comprehensive term paper and research project reqd for grad cr. Three lec and one 3-hr lab a wk. Prereq: Ent 211. (Alt/yrs)

Ent **J491/J591 Principles of Insect Pest Management** (3 cr). Quantitative analyses, ecological theory, and pest control tactics required to design and conduct integrated pest management programs for insects. Two written papers and one classroom seminar reqd for grad cr. Prereq: one course in statistics or perm. (Alt/yrs)

Ent **499** (s) **Directed Study** (cr arr). Prereq: perm.

Ent **500 Master's Research and Thesis** (cr arr).

Ent **501** (s) **Seminar** (cr arr). Prereq: perm.

Ent **502** (s) **Directed Study** (cr arr). Prereq: perm.

Ent **504** (s) **Special Topics** (cr arr). Prereq: perm.

Ent **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Ent **WS507 Genetics and Molecular Aspects of Biological Control** (1 cr). WSU Entom 507. Introduction to genetics of biological control agents and the use of molecular techniques to advance biological control.

Ent **WS508 Rearing, Insectary, and Quarantine Operations** (1 cr). WSU Entom 508. Rearing of biocontrol agents in both the laboratory and glass house and quarantine operations.

Ent **WS509 Integrated Chemical Control of Pests** (1 cr). WSU Entom 509. Study of chemicals that are either compatible or highly disruptive toward the biological control of insects and other animal and plant pests.

Ent **ID510 Historical Development of Biological Control** (1 cr). WSU Entom 510. Follows the development of biological control from its historical roots to the application of modern techniques. Prereq: college-level biology course. (Alt/yrs)

Ent **WS512 Survey of Biological Control Agents** (2 cr). WSU Entom 512.

Ent **WS515 Sampling Insect Populations** (2 cr). WSU Entom 515.

Ent **ID516 Mechanisms of Host Plant Resistance** (1 cr). WSU Entom 516. Introduction to the physical, chemical, and physiological characteristics of plants that can produce resistance to attack or injury by insects.

Ent **WS526 Population Analysis** (1 cr). See Ent J426/J526.

Ent **WS529 Principles of Population Dynamics** (1 cr). See Ent J429/J529.

Ent **WS539 Insect-Plant Interactions: Population Dynamics** (1 cr). See Ent J439/J539.

Ent **540 Insect Identification** (4 cr). See Ent J440/J540.

Ent **ID541 Advanced Insect Ecology** (3 cr). See Ent J441/J541.

Ent **WS542 Insect Behavior** (4 cr). WSU Entom 542. (Alt/yrs)

Ent **WS543 Predator-Prey Dynamics** (1 cr). WSU Entom/Zool 543. Dynamic consequences of interactions between predators and their prey at the population, community, and ecosystem level. Prereq: general ecology.

Ent **ID546 Host Plant Resistance to Insects and Pathogens** (3 cr). See Ent J446/J546.

Ent **ID547 Fundamentals of Biological Control** (2 cr). See Ent J447/J547.

Ent **ID549 Insect-Plant Interactions** (3 cr). See Ent J445/J549.

Ent **WS550 Insect Physiology** (4 cr). WSU Entom 550.

Ent **ID&WS551 Applied Biological Control: Weeds** (1 cr). See Ent J451/J551.

Ent **ID&WS552 Applied Biological Control: Arthropod Pests** (1 cr). See Ent J452/J552.

Ent **ID553 Applied Biological Control: Microbial Control** (1 cr). See Ent J453/J553.

Ent **WS556 Insecticides: Toxicology and Mode of Action** (1 cr). WSU Entom 556. Insecticides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and insect physiology. (Alt/yrs)

Ent **WS557 Herbicides: Toxicology and Mode of Action** (1 cr). WSU Entom and CropS 557. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism. Prereq: biochemistry, organic chemistry, physiology, plant or animal physiology.

Ent **WS558 Pesticide Topics** (1 cr). WSU Entom 558. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and plant, insect, or animal physiology. (Alt/yrs)

Ent **ID572 Aquatic Entomology** (3 cr). See Ent J472/J572.

Ent **WS583 Physiological Interactions in Predator/Prey Relationships** (1 cr). WSU Entom/ Zool 583. Physiological, behavioral, and ecological aspects of host/parasitoid and prey-predator interactions. Prereq: general physiology, behavior, and ecology.

Ent **584 Insect Anatomy and Physiology** (4 cr). See Ent J484/J584.

Ent **591 Principles of Integrated Pest Management** (3 cr). See Ent J491/J591.

Ent **WS595 Noncropland Weed Biological Control Internship** (1-3 cr, max 6). WSU Entom 595. Prereq: graduate standing; by interview only.

Ent **597** (s) **Practicum** (cr arr). Prereq: perm.

Ent **598** (s) **Internship** (cr arr). Prereq: perm.

Ent **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Ent **600 Doctoral Research and Dissertation** (cr arr).

Environmental Engineering

Margrit von Braun, Program Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail enve@uidaho.edu; http://www.uidaho.edu/enve).

Note: Most of the courses in this program are in the Departments of Biological and Agricultural Engineering, Civil Engineering, and Chemical Engineering. Please refer to the curricular requirements in part 5 for a complete list of courses.

EnvE **435 Hazardous Waste Engineering** (3 cr). See CE 435.

EnvE **500 Master's Research and Thesis** (cr arr).

EnvE **531 Environmental Engineering Unit Operations** (3 cr). See CE 531.

EnvE **532 Design of Water and Wastewater Systems II** (3 cr). See CE J432/J532.

EnvE **533 Bioremediation** (3 cr). See BSyE J433/J533.

EnvE **534 Environmental Engineering Unit Processes** (3 cr). See CE 534.

EnvE **543 Water Quality Management** (3 cr). See CE J433/J533.

EnvE **544 Bioreactor Theory and Design for Waste Treatment** (3 cr). See BSyE J432/J532.

EnvE **552 Environmental Water Quality** (3 cr). See BSyE J452/J552.

EnvE **560 Biochemical Engineering** (3 cr). See ChE J460/J560.

EnvE **570 Hazardous Waste Management** (3 cr). See ChE J470/J570.

EnvE **575 Air Pollution Control** (2-3 cr). See ChE J475/J575.

EnvE **R578 Treatment of Hazardous Chemical Waste** (3 cr). See ChE 578.

EnvE **R579 Hazardous Waste Site Remediation Design** (3 cr). See ChE 579.

EnvE **580 Engineering Risk Assessment for Hazardous Waste Evaluations** (3 cr). See ChE J480/J580.

EnvE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Environmental Science

Margrit von Braun, Program Director (207 Morrill Hall 83844-3006; phone 208/885-6113; FAX 208/885-4674; e-mail envs@uidaho.edu; http://www.its.uidaho.edu/EnvSc).

Note: Most of the courses in this interdisciplinary program are in other academic departments and are not listed below. Please refer to the curricular requirements in part 5 for a complete list of classes.

EnvS **101 Introduction to Environmental Science** (3 cr) (C). May be used with EnvS 102 as core credit in J-3-b (pilot offering). Introduction to basic principles in the biological, physical, and social science areas of environmental science.

EnvS **102 Field Activities in Environmental Sciences** (1 cr). May be used with EnvS 101 as core credit in J-3-b (pilot offering). Field studies for EnvS 101. Field demonstrations on waste management, water, air pollution, and the ecosystem. Field trips required. Prereq or coreq: EnvS 101.

EnvS **200** (s) **Seminar** (cr arr). Prereq: perm.

EnvS **WS210 Microcomputer Models of Environmental Systems** (3 cr). WSU ES/RP 210.

EnvS **400** (s) **Seminar** (1 cr). Prereq: senior standing.

EnvS **404** (s) **Special Topics** (cr arr). Prereq: perm.

EnvS **R428 Pollution Prevention** (3 cr). Basic concepts of pollution prevention and waste minimization; pollution prevention strategies and case studies for solid waste, hazardous waste, water and energy use, and air pollution.

EnvS **R429 Environmental Audit** (3 cr). Details on a variety of equipment and processes used by business in order to decrease generation of solid and hazardous waste.

EnvS **WS-J445/WS-J545 Hazardous Waste Management** (3 cr). WSU ES/RP 445/545. Environmental, technical, and political aspects of hazardous waste management; evaluative methods, risk methods, risk assessment, and current management requirements.

EnvS **R470 Survey of Hazardous Waste Management Problems** (3 cr). Cr not granted for both ChE J470/J570 and EnvS R470. Not applicable toward any engineering degree. Environmental, technical, political, and economic aspects of hazardous waste management. Prereq: sr standing and perm.

EnvS **R471 Waste Treatment Technologies** (3 cr). Not applicable toward any engineering degree. Procedures for characterization of hazardous waste sites, identification and application of physical, chemical, biological, and thermal treatment. Prereq: Math 143 and Chem 112.

EnvS **R472 Remediation Technologies and Project Implementation** (3 cr). Not applicable toward any engineering degree. Waste site remediation and restoration technologies and project development; includes alternative technologies, containment, storage and disposal; emphasis on project development, organization, and practices for dealing with hazardous chemical, radioactive, and mixed wastes and for successful site remediation operations including administrative, legal, economic, and political considerations. Prereq: sr standing and perm.

EnvS **R-J479/R-J579 Introduction to Environmental Regulations** (3 cr). Interpretation and implementation of local, state, and federal environmental rules; introduction to environmental regulatory process; topics include regulatory aspects of environmental impact assessment, water pollution control, air pollution control, solid and hazardous waste, resource recovery and reuse, toxic substances, pesticides, occupational safety and health, radiation, facility siting, environmental auditing and liability. Additional projects/assignments reqd for grad cr.

EnvS **R-J482/R-J582 Natural Resource Policy and Law** (3 cr). Examination of U.S. natural resource policy and law including historical contexts and current policies and laws. Prereq: an undergraduate course in political science. Additional projects/assignments reqd for grad cr.

EnvS **497** (s) **Practicum in Environmental Science** (3 cr). Problem solving in the environmental sciences using laboratory, field, or library techniques. Prereq: senior standing.

EnvS **498** (s) **Internship** (cr arr). Prereq: perm.

EnvS **499** (s) **Directed Study** (cr arr). Prereq: perm.

EnvS **500 Master's Research and Thesis** (cr arr).

EnvS **501** (s) **Seminar** (cr arr).

EnvS **502** (s) **Directed Study** (cr arr). Prereq: perm.

EnvS **504** (s) **Special Topics** (3 cr, max arr). Prereq: perm.

EnvS **WS528 Pollution Prevention** (3 cr). WSU ES/RP 428. Introduction to practical tools necessary for completing on-site waste audits.

EnvS **R531 Environmental Modeling** (3 cr). Description of chemical environmental fate and transport processes mathematically; transformation of mathematical concepts to computer programs; art of model calibration and verification, and techniques in uncertainty analysis.

EnvS **R541 Sampling and Analysis of Environmental Contaminants** (3 cr). Monitoring system design, sampling procedures, RCRA/CERCLA sampling, quality assurance data quality objectives. Prereq: Chem 112, Stat 301.

EnvS **WS545 Hazardous Waste Management** (3 cr). See EnvS J445/J545.

EnvS **WS550 System Dynamics Models of Environmental Systems** (3 cr). WSU ES/RP 550.

EnvS **552 Environmental Philosophy** (3 cr). See Phil 452.

EnvS **WS555 Environmental Planning** (3 cr). WSU ES/RP 555.

EnvS **R579 Introduction to Environmental Regulations** (3 cr). See EnvS J479/J579.

EnvS **R580 Environmental Law and Regulation** (3 cr). Emphasis on cases, legislation, and policies behind environmental laws and regulations to enhance understanding of judicial construction and interpretation of environmental laws. Prereq: EnvS R479/R579 or perm.

EnvS **R581 Applications of Environmental Regulations** (3 cr). Details of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); interpretation and application of environmental regulations to remediation of hazardous waste treatment, storage, and disposal sites; detailed coverage of environmental regulatory affairs of concern in Idaho; interrelationships between RCRA, CERCLA, and other environmental laws. Prereq: EnvS R479/R579 or perm.

EnvS **R582 Natural Resource Policy and Law** (3 cr). See EnvS J482/J582.

EnvS **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Family and Consumer Sciences

Linda Kirk Fox, Director, Margaret Ritchie School of Family and Consumer Sciences (105 Mary Hall Niccolls Family and Consumer Sciences Bldg. 83844-3183; phone 208/885-6545; e-mail famcon@uidaho.edu).

FCS **105 Individual and Family Development** (3 cr). Basic principles and sequences in individual and family development; family structure and functions as they support human development.

FCS **123 Textiles** (3 cr). Fiber, yarn, and fabric properties, color and finishes as they relate to performance, care, and consumer satisfaction. Two lec and one 2-hr lab a wk.

FCS **129 Dress and Culture** (3 cr). Social, psychological, and cultural aspects of clothing, including the relationship of clothing to physical and social environments, aesthetic and personal expression, and cultural ideals and values. Field trip.

FCS **170 Introductory Foods** (3 cr). Fundamental processes underlying food preparation with emphasis on physical and chemical aspects. Two lec and one 3-hr lab a wk. Prereq: 3 cr of Chem 101 or 111.

FCS **200** (s) **Seminar** (cr arr). Prereq: perm.

FCS **203** (s) **Workshop** (cr arr). Prereq: perm.

FCS **204** (s) **Special Topics** (cr arr). Prereq: perm.

FCS **205 Concepts in Human Nutrition** (3 cr) (C). Nutrition principles with their application to nutrition in life cycle; nutrition problems and controversies such as weight control and nutrition for athletes; individual computerized study of student's dietary intake.

FCS **ID&WS223 Evaluation of Apparel and Textiles** (3 cr). WSU AMT 218. Analysis of textile and apparel products relative to production methods, product performance, and consumer value. Three lec and 2 hrs of lab a wk; field trips. Prereq: FCS 123 or perm.

FCS **ID&WS224 Apparel Design I** (3 cr). WSU AMT 216. Design conception, fabric characteristics, garment assembling, principles of fitting, quality control for the apparel industry. One lec and five hrs of lab a wk.

FCS **234 Infancy and Early Childhood** (3 cr). Influences on development before birth through the preschool years; factors that determine physical, emotional, cognitive, social, and creative development.

FCS **235 Principles and Methods of Child Observation** (3 cr). Development of skills necessary to observe, record, and interpret child behavior; observations to be arranged. Prereq: FCS 234 or perm.

FCS **240 Intimate Relationships** (3 cr). Dynamics of intimate relationships from early adulthood through the adult lifespan.

FCS **270 Intermediate Foods** (3 cr). Sensory evaluation, meal planning, consumer issues, cultural influences on food choices. Two lec and one 2-hr lab a wk. Prereq: FCS 170.

FCS **299** (s) **Directed Study** (cr arr). Prereq: perm.

FCS **ID305 Nutrition Related to Fitness and Sport** (3 cr). WSU Ath T and FSHN 305. Identification of energy, macro/micro nutrient and fluid requirements during exercise; evaluation of dietary regimens and ergogenic aids for pre and post competition, weight maintenance, and wellness; assignments include a case analysis of a UI or WSU athlete and evaluation and critical review of related research. Prereq: FCS 205.

FCS **WS306 Gerontology** (3 cr). WSU H D 305. Examination and analysis of social context of aging including public policy, implications of demographic shifts, and quality-of-life issues.

FCS **WS318 Merchandising Mathematics** (3 cr). WSU AMT 318. Overview of apparel retailing, merchandise planning, and buying; application of planning and buying principles, and preparation for professional experiences. Prereq: Bus 321 or perm.

FCS **ID&WS324 Apparel Design II** (3 cr). WSU AMT 311. Methods and principles of flat pattern design; use of pattern making skills to create original designs; development and application of computer skills in designing apparel for the industry. One lec and five hrs of lab a wk. Prereq: FCS 224 or perm.

FCS **329 Historic Costume** (3 cr). Costume as an expression of the times; includes social and psychological aspects of clothing and historical overview of costume.

FCS **333 Developmental Curriculum for Young Children** (3 cr). Principles and practices of a developmentally based curriculum, assessment, intervention, and evaluation. Two lec and two hrs of lab a wk. Prereq: FCS 235 or perm.

FCS **334 Middle Childhood-Adolescence** (3 cr). Behavior, development, and guidance of children and youth from entrance in school until they are launched into adulthood; influences of family, school, peer group, and larger community. Prereq: Psyc 101, Soc 101, or perm.

FCS **340 Parent-Child Relationships in Family and Community** (3 cr). May be taken by nonmajors. Dynamics of parent-child interactions and models for parent education programs in community and school settings. Prereq: FCS 234 or 334.

FCS **346 Personal and Family Finance and Management** (4 cr). Principles and procedures of individual and family management and their relationship to human and economic resources; applications of management principles to spending, saving, borrowing, and investing decisions.

FCS **361 Advanced Nutrition** (4 cr). Principles of nutrition; physiology of digestion, absorption and metabolism of nutrients. Three lec and 2 hrs of lab a wk. Prereq: FCS 205, MMBB 380, Zool 120 and 121.

FCS **362 Introduction to Clinical Dietetics** (4 cr). Dietetics, role of the dietitian; dietary departments in health care facilities. Three lec and 3 hrs of supervised practice a wk. Prereq: jr standing in CPD.

FCS **363 Diet Therapy** (4 cr). Diet modification for adult and child needs in disease and convalescence. Clinical experience in Spokane hospitals. Prereq: sr standing in CPD.

FCS **364 Clinical Dietetics I** (4 cr). Clinical experience in Spokane hospitals. Prereq: sr standing in CPD.

FCS **384 Quantity Food Production and Equipment** (5 cr). Food production in large volume; use and selection of institutional equipment and food; supervised practice in food service. Three hrs of lec, 1 hr of recitation, and 5 hrs of supervised practice a wk. Prereq: FCS 270 or perm.

FCS **387 Food Systems Management** (3 cr). Institutional organization and management; supervised practice in food service. Two lec and 3 hrs of supervised practice a wk. Prereq: FCS 384 or perm.

FCS **400** (s) **Seminar** (cr arr). Prereq: perm.

FCS **403** (s) **Workshop** (cr arr). Prereq: perm.

FCS **404** (s) **Special Topics** (cr arr). Prereq: perm.

FCS **ID405 Eating Disorders** (2 cr). WSU FSHN 405. Examination of anorexia nervosa, bulimia nervosa, compulsive eating, obesity, and weight preoccupation; discussion of cultural and nutritional factors, family issues, and psychological consequences, as well as preventative and therapeutic interventions.

FCS **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

FCS **WS-J417/WS-J517 Social and Psychological Aspects of Dress** (3 cr). WSU AMT 417/517. Role of dress in human interaction; personal/social attributes of dress; research/theory applied to dress and human behavior.

FCS **WS418 Apparel Merchandising II** (3 cr). WSU AMT 418. Issues and trends in contemporary merchandising.

FCS **424 Apparel Design III** (3 cr). Pattern creation through draping method; application of computer skills in designing apparel for target groups. One lec and 5 hrs of lab a wk. Prereq: FCS 324 or perm.

FCS **ID428 Housing America's Families** (3 cr). WSU H D 428. Housing, furnishings, and equipment as they influence family well-being, and families' housing choices as affected by social, psychological, economic, technological, and political factors.

FCS **ID429 Current Issues in Clothing and Textiles** (3 cr). WSU AMT 314. Discussion of major topics of current interest in clothing and textiles including theory, research, and application in today's world. Prereq: FCS 129, 329 or perm.

FCS **436 Theories of Child and Family Development** (3 cr). Identification, interpretation, and evaluation of individual and family developmental theories.

FCS **440 Contemporary Family Relationships** (3 cr) (C). Dynamics of the major types of family relationships; marital, parent-child, sibling, and extended-family interaction in contemporary society. Prereq: Psyc 101, Soc 101, or perm.

FCS **444 Diverse Populations and Individual Differences** (2-3 cr). See ACTE 444.

FCS **J445/J545 Issues in Work and Family Life** (3 cr). Study of theories, trends, policies, and issues related to work and family; examination of assessment instruments; development of proposals. Additional projects/assignments reqd for grad cr. Prereq: FCS 105 and 346, or perm. (Alt/yrs)

FCS **448 Consumer Economic Issues** (3 cr). Consumer economic issues, including consumers in the marketplace, the consumer movement, rights and remedies, advocacy, public policy, decision making, buying, credit, banking, insurance, clothing, health care, food, housing, and investments. Prereq: Econ 201 or 202 or perm.

FCS **450 Curriculum Development in Family and Consumer Sciences Education** (3 cr). Analysis of curricular models and content; development of curricular units for family life. Prereq: admission to teacher education program.

FCS **451 Professional Development** (3 cr). Ethics, public policy, and communication related to family and consumer issues. Prereq: senior standing.

FCS **460 Family as an Ecosystem** (3 cr). Survey of the literature and discussion of the interaction between ecological factors (political, social, and economic) and contemporary families; analysis of the interrelationship of social change and family values, structure, and roles.

FCS **471 Student Teaching in Family and Consumer Sciences Education** (10 cr). Ten weeks of practical experience in secondary family and consumer sciences program; one week of field-based experience at assigned student teaching center before beginning of semester is required. Prereq: admission to teacher education program, FCS 450.

FCS **472 Clinical Dietetics II** (6 cr). Continuation of FCS 364. Supervised practice in Washington/Idaho hospitals. Prereq: FCS 364, sr standing in CPD.

FCS **ID&WS473 Community Nutrition** (2-4 cr). WSU FSHN 426. Nutrition program; nutrition problems of special groups. Clinical experience in Spokane school lunch program, public health, etc. Two lec and six hrs of supervised practice a wk. Prereq: sr standing in CPD.

FCS **474 Food Research and Development** (3 cr). Same as FST 474. Independent and team research on foods and food products; sensory and objective testing of food; research writing and presentation. Two lec and 3 hrs of lab a wk. Prereq: FST 101 or FCS 270, MMBB 380 or perm.

FCS **485 Computer Applications in Food Administration** (2 cr). Nutrient analysis and management of ingredients, recipes, menus, and related functions. One hr of lec and 2 hrs of lab a wk. Prereq or coreq: FCS 384 or perm.

FCS **ID&WS486 Nutrition in the Life Cycle** (4 cr). WSU FSHN 331. Maternal nutrition and fetal development; lactation; nutritional needs and dietary patterns from infancy through old age. Three lec and 2 hrs of lab a wk. Prereq: sr standing in CPD.

FCS **487 Management Supervised Practice** (2 cr). Food service management; program organization, analysis, and evaluation of food service facilities and resources; equipment/purchasing tours; pre-practicum experience. One lec and 3 hrs of supervised practice a wk. Prereq: FCS 387.

FCS **488 Food Service Management Practicum** (6 cr). Supervised practice with dietitians and employees in school and hospital food service settings in Idaho or Washington. Prereq: FCS 487.

FCS **496 Internship: Fashion Business** (3-9 cr, max 9). Supervised experience in fashion business: fashion design, textile/apparel manufacturing, retailing, merchandising; geared to career goals of student. Graded P/F. Prereq: perm.

FCS **497** (s) **Practicum** (cr arr). On- or off-campus supervised applied experience in family and consumer sciences major areas: child development and family relations; clothing, textiles, and home design; food and nutrition; consumer education; and cooperative extension. Prereq: perm.

FCS **498** (s) **Internship** (3-9 cr). Supervised internship in education institutions, governmental/social agencies, hospitals, business, or industry; geared to the professional goals of students. Prereq: perm.

FCS **499** (s) **Directed Study** (cr arr). Prereq: perm.

FCS **500 Master's Research and Thesis** (cr arr).

FCS **501** (s) **Seminar** (cr arr). Prereq: perm.

FCS **502** (s) **Directed Study** (cr arr). Prereq: perm.

FCS **503** (s) **Workshop** (cr arr). Prereq: perm.

FCS **504** (s) **Special Topics** (cr arr). Prereq: perm.

FCS **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

FCS **507 Research Methodology** (3 cr). See AgEc 507.

FCS **WS513 Mineral and Vitamin Metabolism** (4 cr). WSU FSHN 513. Physiological chemistry and metabolism of vitamins and minerals in animals and humans.

FCS **WS514 Advanced Human Nutrition** (4 cr). WSU FSHN 504. Study of experimental evidence related to dietary guidelines, metabolism, and nutritional assessment; critique and research design of nutrition research.

FCS **WS517 Social and Psychological Aspects of Dress** (3 cr). See FCS J417/J517.

FCS **WS520 Research Methods in Behavioral Nutrition** (3 cr). WSU FSHN 520. Study and evaluation of theoretical approaches used in behavioral nutrition research.

FCS **WS521 Research Methods in Human Development I** (3 cr). WSU H D 513. Introduction to process of research and methods in human development; includes techniques of research, data collection, and data analysis procedures. Prereq: perm.

FCS **WS522 Research Methods in Human Development II** (3 cr). WSU H D 514. Integration of formal decision making into the social science research process; includes procedures appropriate for experimental, quasi-experimental, and field research. Prereq: perm.

FCS **WS526 Advanced Community Nutrition** (3 cr). WSU FSHN 526. The study of community nutrition issues from the perspectives of practitioner, researcher, and administrator; development and presentation of grant proposals.

FCS **ID540 Parent-Child Relationships** (3 cr). WSU H D 558. Open to nonmajors. The developing family; patterns of child rearing. Prereq: FCS 234 or 334, 440, and 6 cr in psychology and/or sociology or equivalent.

FCS **545 Issues in Work and Family Life** (3 cr). See FCS J445/J545.

FCS **551 Techniques of Supervision** (2 cr).

FCS **ID554 Program Development in Child, Family, and Consumer Studies** (3 cr). WSU H D 535. Analysis and development of program delivery systems, curricula, and evaluation models.

FCS **ID560 Family Resource Management** (3 cr). WSU H D 575. Management of economic and human resources with focus on family structures in all socioeconomic and age groups. Prereq: FCS 346 or equivalent or perm.

FCS **ID561 Sports Nutrition** (3 cr). WSU FSHN 561. Macronutrient and selected micronutrient utilization during exercise and restoration after feeding, dietary surveys of athletes, dietary ergogenic aids, and discussion of the origins of dietary recommendations for athletes. Prereq: perm.

FCS **WS580 Families, Community and Public Policy** (3 cr). WSU H D 580. Analysis of family policy research; role of family policy research in public policy and knowledge building processes. Prereq: approved graduate research methods course.

FCS **ID590 Intellectual Foundations in Family and Consumer Sciences** (3 cr). WSU AMT 598. Overview of historical perspectives of family and consumer sciences profession; explanation and application of alternative modes of inquiry in family and consumer sciences research.

FCS **WS594 Readings in Apparel, Merchandising, and Textiles** (3 cr). WSU AMT 594. Exploration of current topics through readings in apparel, merchandising, and textiles.

FCS **597** (s) **Practicum** (cr arr). Prereq: perm.

FCS **598** (s) **Internship** (cr arr). Supervised internship in educational institutions, governmental/social agencies, hospitals, or industry; geared to the educational and vocational goals of students. Prereq: perm.

FCS **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

COURSES

Fishery Resources

George W. LaBar, Head, Dept. of Fish and Wildlife Resources (105 FWR Bldg. 83844-1136; phone 208/885-6434).

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

Fish **102 The Fishery Resources Profession** (1 cr). Orientation of students to the profession of fishery resources; career opportunities, employment, duties of a fishery biologist, job preparation, management challenges in the Pacific Northwest. (Fall only)

Fish **200** (s) **Seminar** (cr arr). Prereq: perm.

Fish **203** (s) **Workshop** (cr arr). Prereq: perm.

Fish **204** (s) **Special Topics** (cr arr). Prereq: perm.

Fish **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Fish **290 Fish and Wildlife Ecology, Management, and Conservation** (3 cr). Open to non-majors only. Application of biological and ecological principles and concepts to conservation and management of fish and wildlife populations and their habitats.

Fish **299** (s) **Directed Study** (cr arr). Prereq: perm.

Fish **302 Wildland Field Ecology** (2 cr). Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235, and For/Rnge/WLF 221 or Biol 331. (Summer only)

Fish **ID314 Fish Ecology** (3 cr). WSU Zool 314. Examination of physical, chemical, and biological factors that affect fish populations and communities, with emphasis on environmental stressors. Prereq: For/Rnge/WLF 221 or basic ecology. (Spring only)

Fish **WS319 Aquaculture** (2 cr). WSU A S 468. History and overview of aquaculture. Prereq: Biol 201, Chem 101.

Fish **398** (s) **Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

Fish **400** (s) **Seminar** (cr arr). Prereq: perm.

Fish **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Fish **403** (s) **Workshop** (cr arr). Prereq: perm.

Fish **404** (s) **Special Topics** (cr arr). Prereq: perm.

Fish **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Fish **411 Ichthyology** (4 cr). See Zool J481/J581.

Fish **ID415 Limnology** (4 cr). WSU ES/RP and Zool 411. Same as Zool 435. Physical, chemical, and biological features of lakes and streams. Four 1-day field trips. Prereq: WLF 221 or Biol 331. (Fall only)

Fish **ID&WS418 Fisheries Management** (4 cr). WSU NATRS 416. Techniques employed in sampling and application of principles toward managing recreational and commercial aquatic resources. Three lec and one 3-hr lab a wk; two weekend field trips. Prereq: Fish 314 and 411, Stat 251. (Fall only)

Fish **ID419 Aquaculture and Fish Health** (4 cr). WSU NATRS 424. Concepts and methods of extensive and intensive aquaculture including an emphasis on epidemiology and diagnosis and prevention of infectious and non-infectious diseases of fish. Prereq: MMBB 250 and Fish 411. (Spring only)

Fish **430 Riparian Ecology and Management** (2 cr). Structure, function, and management of riparian ecosystems; interrelationships of terrestrial and aquatic components of riparian areas. Prereq: WLF/For/Rnge 221 or Biol 331. (Fall only)

Fish **446 Diseases of Wild Birds and Mammals** (2 cr). See WLF 446.

Fish **470 Interdisciplinary Natural Resource Planning** (3 cr). Land use planning and decision-making theories, legislation and techniques applied to natural resource case studies from public and private sector, including impact assessment, creation and valuation of alternatives, and public involvement. Two hrs of lec, 2 hrs of lab, and 1 hr of recitation a wk; may include one 1-day field trip. Prereq: senior standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302; or perm.

Fish **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

Fish **495** (s) **Seminar** (1 cr). Discuss integrating biological, social, political, economic, and philosophic aspects of problems in managing fishery resources. (Spring only)

Fish **497 Senior Thesis** (1-3 cr, max 6). Open only to majors in fishery resources. Preparation of thesis, exhibition, video, computer program, multimedia program, or other creative presentation based on research conducted under the guidance of a faculty mentor. Prereq: cumulative GPA of at least 3.5 in all college courses, completion of at least 90 credits, and permission of a faculty mentor.

Fish **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: senior standing, GPA 2.5, and perm.

Fish **500 Master's Research and Thesis** (cr arr).

Fish **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

Fish **502** (s) **Directed Study** (cr arr). Prereq: perm.

Fish **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

Fish **504** (s) **Special Topics** (cr arr). Prereq: perm.

Fish **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Fish **ID510 Advanced Fishery Management** (3 cr). WSU Zool 513. Compensation as a phenomenon basic to exploitation; yield in numbers and weight; models of yield; stock-recruitment functions; economic yield; application of theory of physical and economic yield to empirical examples in commercial and sport exploitation. One 5-day field trip. (Alt/yrs; spring only)

Fish **ID511 Fish Physiology** (4 cr). WSU Zool 515. Principles and methods used to study vital organs, organ systems, growth, and reproduction of fishes; emphasis on osmoregulation, metabolism, endocrinology, and respiration. Prereq: Fish 411 and perm. (Alt/yrs; fall only)

Fish **ID512 Aquatic Pollution Ecology** (3 cr). WSU Zool 512. Principles and working examples of the ecology of polluted aquatic stream and lake habitats. Two 1-day field trips. Prereq: Fish 415 or perm. (Alt/yrs; spring only)

Fish **ID514 Fish Population Ecology** (2 cr). WSU Zool 514. Review of abiotic and biotic factors controlling or regulating fish population densities and critical review of relevant literature. (Alt/yrs; fall only)

Fish **WS519 Fish Genetics** (2 cr). WSU GenCB 516.

Fish **ID520 Fish Behavior** (3 cr). WSU Zool 518. Causes, mechanisms, and functions of fish behavior, including reproduction, communication, schooling, feeding, migration, and orientation. (Alt/yrs; spring only)

Fish **530 Stream Ecology** (2 cr). Structure and function of running water ecosystems; principles of population, community, and ecosystem ecology in streams and rivers. (Alt/yrs; spring only)

Fish **589 Water Resources Seminar** (1 cr). See Intr 589.

Fish **597** (s) **Practicum** (cr arr). Prereq: perm.

Fish **598** (s) **Internship** (cr arr). Prereq: perm.

Fish **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Fish **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Food Science and Toxicology

Jerry H. Exon, Head, Dept. of Food Science and Toxicology (22 Glen C. Holm Bldg. 83844-2201; phone 208/885-7081; toll-free 888/900-3783; e-mail fstasl@uidaho.edu).

FST **101 Introduction to Food Science** (3 cr). Introduction to chemistry, microbiology, and processing of food and food products; concepts of food preservation, packaging and marketing of foods; food additives and regulations; world food problems.

FST **ID&WS201 Food Quality Assurance** (3 cr). WSU FSHN 200. Regulations that govern safety and wholesomeness of processed food products; microbiological and chemical hazards and physical factors that influence food quality; methods for analyzing microbiological, chemical, physical, and sensory qualities of food products and packaging; design of programs, problem management associated with food quality assurance.

FST **204** (s) **Special Topics** (cr arr). Prereq: perm.

FST **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

FST **ID210 The Science of Viticulture and Enology** (2 cr). WSU FSHN 210. Aspects of grapes and wines including fermentation and processing, physiology of alcohol and other components, history, general survey of wines of the U.S. and the world, and evaluation methods; guest lecturers from the industry.

FST **264 Consumer Meats** (3 cr). See AVS 264.

FST **WS301 Dairy Products** (3 cr). WSU FSHN 301. Specialized techniques and practices of dairy product manufacturing and marketing. Field trip. Prereq: MMBB 250, Chem 275, 276.

FST **WS303 Food Processing** (3 cr). WSU FSHN 303. Specialized techniques and practices of fruit and vegetable processing and marketing. Field trip. Prereq: MMBB 250, Chem 275, 276.

FST **WS304 Cereal Products** (2 cr). WSU FSHN 304. Technical principles related to production and commercial processing of legume and cereal foods. Field trip reqd. Prereq: Chem 275, 276.

FST **363 Animal Products for Human Consumption** (3 cr). See AVS 363.

FST **400** (s) **Seminar** (cr arr). Prereq: perm.

FST **404** (s) **Special Topics** (cr arr). Prereq: perm.

FST **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

FST **WS407 Food Product Development** (2 cr). WSU FSHN 404. Development of food products from concept to marketplace.

FST **ID416 Food Microbiology** (2 cr). See MMBB 416.

FST **ID417 Food Microbiology Laboratory** (2 cr). See MMBB 417.

FST **ID&WS-J422/ID&WS-J522 Food Quality Evaluation** (3 cr). WSU FSHN 422/522. Fundamental processes underlying applied sensory analysis, with especial emphasis on statistical analysis and data interpretation; basic psychological and physiological processes underlying sensory analysis; basic sensory testing methodologies; emphasis on appropriate sensory test design, statistical analysis, and interpretation. In addition, students taking 522 will cover advanced sensory evaluation techniques: time-intensity data collection and analysis; basic principles of instrumental measurement of color; basic principles of rheology and texturometry; basic principles of flavor perception and chemistry; instrumental/sensory correlation. Prereq: Stat 251 or perm.

FST **J427/J527 Transmission Electron Microscopy** (3 cr). Discussion and application of basic skills reqd in use of transmission electron microscope, including simple specimen preparation techniques and photographic darkroom skills. Additional projects/assignments reqd for grad cr.

FST **ID&WS433 Agricultural Processing Systems** (3 cr). WSU AgTM and FSHN 433. Principles of heat tranasfer, steam, air-vapor mixtures, refrigeration and fluid flow as applied to commodity processing and storage.

FST **WS434 Agricultural Processing Laboratory** (1 cr). WSU AgTM and FSHN 434. Experiments in heat transfer, fluid flow, and dehydration.

FST **J440/J540 Biological Electron Microscopy** (4 cr). Application of biological specimen preparation techniques in EM, including ultramicrotomy and use of specific stains. Registration for FST 540 requires completion of a written report. Prereq: FST J427/J527.

FST **J441/J541 Scanning Electron Microscopy** (3 cr). Theory and principles of scanning electron microscopy as investigative tool; includes operation and maintenance of electron microscope, specimen preparation, and photographic darkroom procedure. Students registering for FST 541 are reqd to complete an additional research paper.

FST **WS-J450/WS-J550 Food Fermentations** (3 cr). WSU FSHN 450/550. Cr not granted for both FST 450 and 550. Principles and procedures of fermentation of fruits and vegetables, meat products, and dairy products. Additional projects/assignments reqd for grad cr. Prereq: MMBB 250, Chem 275, 276. (Alt/yrs)

FST **ID&WS460 Food Chemistry** (3 cr). WSU FSHN 460. Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Prereq: Chem 275, 276, MMBB 380.

FST **ID&WS461 Food Chemistry Laboratory** (1 cr). WSU FSHN 461. Experiments related to properties, reactions, and interactions of chemical components of foods.

FST **WS462 Food Analysis** (4 cr). WSU FSHN 462. Introductory food analysis; methods common to many food commodities. Prereq: Chem 275, 276, MMBB 250.

FST **WS-J470/WS-J570 Advanced Food Technology** (3 cr). WSU FSHN 470/570. Cr not granted for both FST 470 and 570. Physical principles of food preservation and recent advances in food technology. Additional projects/assignments reqd for grad cr. Prereq: FST 416, 433 or perm.

FST **474 Food Research and Development** (3 cr). See FCS 474.

FST **WS-J487/WS-J587 Food Process Engineering Design** (3 cr). WSU BSysE 482/582. Fundamentals for design of food processing systems; food properties; thermal and physical processes. Prereq: FST 433.

FST **499** (s) **Directed Study** (cr arr). Prereq: perm.

FST **500 Master's Research and Thesis** (cr arr).

FST **501** (s) **Seminar** (cr arr). Prereq: perm.

FST **502** (s) **Directed Study** (cr arr). Prereq: perm.

FST **503** (s) **Workshop** (cr arr). Prereq: perm.

FST **504** (s) **Special Topics** (cr arr). Prereq: perm.

FST **WS505 Principles and Methods of Toxicology** (3 cr). WSU P/T 505. Principles of modern, predictive toxicology; actions, biological disposition and environmental fate of natural products, drugs, pesticides, food chemicals, and pollutants.

FST **WS506 Principles of Pharmacology I** (3 cr). WSU P/T 506. Fundamental mechanisms of drug action and the factors that modify drug responses; autonomic and cardiovascular pharmacology.

FST **WS510 Advanced Food Chemistry** (3 cr). WSU FSHN 510. Chemical, physical, and toxicological properties of water, vitamins, pigments, synthetic colors, minerals, miscellaneous food additives, and natural toxicants. Prereq: MMBB 380. (Alt/yrs)

FST **WS512 Food Carbohydrates and Lipids** (3 cr). WSU FSHN 511. Occurrence, structure, properties and functions of carbohydrates, lipids and proteins in foods. Prereq: MMBB 380. (Alt/yrs)

FST **WS513 Food Proteins and Enzymes** (2 cr). WSU FSHN 512. Chemistry/biochemistry of proteins/enzymes applied to food research and industry; protein functionality/enzyme technology application to food industry.

FST **ID&WS522 Food Quality Evaluation** (3 cr). See FST J422/J522.

FST **527 Transmission Electron Microscopy** (3 cr). See FST J427/J527.

FST **WS532 Metabolism of Drugs and Toxins** (2 cr). WSU P/T 532. Pathways, enzymology and mechanisms of metabolism of drugs, environmental contaminants and other xenobiotics; pharmacological and toxicological impact of metabolism. (Alt/yrs)

FST **540 Biological Electron Microscopy** (4 cr). See FST J440/J540.

FST **541 Scanning Electron Microscopy** (3 cr). See FST J441/J541.

FST **WS550 Food Fermentations** (3 cr). See FST J450/J550.

FST **WS570 Advanced Food Technology** (3 cr). See FST J470/J570.

FST **WS572 Fundamentals of Oncology** (3 cr). WSU P/T 572. Thorough overview of cancer biology encompassing basic cellular and molecular mechanisms of carcinogenesis and tumor progression, treatment and prevention. (Alt/yrs)

FST **WS587 Food Process Engineering Design** (3 cr). See FST J487/J587.

FST **WS597 Pharmacology and Toxicology Seminar** (1 cr, max 4). WSU P/T 597. Graded P/F.

Foreign Languages and Literatures

Richard M. Keenan, Chair, Dept. of Foreign Languages and Literatures (302 Admin. Bldg. 83844-3174; phone 208/885-6179; fax 208/885-8964; email forlang@uidaho.edu).

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: Chin 101-102; Fren 101-102 (or 104)-201-202; Germ 101-102-201-202; Grek 341-342-441-442; Japn 101-102-201-202; Latn 101-102; Russ 101-102-203-304; Span 101-102-201-202. In appropriate cases, with the approval of the chair of the Department of Foreign Languages and Literatures, any one of the following courses may be considered the terminal course in the vertical sequence for advanced placement: Fren 301-302; Germ 321-322; Span 301-302. Any upper-division Latin literature course may be used to receive advanced placement credit for Latn 101-102.

PREREQUISITE: Each successive course in the vertical sequences of the elementary and intermediate language courses listed above has as prerequisite the successful completion of the previous course in the sequence with a grade of C or better. Prerequisite for upper-division language courses is the appropriate intermediate course with a grade of C or better or equivalent.

COURSES OFFERED IN ENGLISH

No knowledge of foreign language required. May be used to fulfill the L&S humanities requirement.

FLEN **200** (s) **Seminar** (cr arr). Prereq: perm.

FLEN **204** (s) **Special Topics** (cr arr). Prereq: perm.

FLEN **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

FLEN **211 Classical Mythology (Gods)** (2 cr). Intro to classical myths and legends and their survival in western literature and art.

FLEN **212 Classical Mythology (Heroes)** (2 cr). Intro to classical myths and legends and their survival in western literature and art.

FLEN **243 English Word Origins** (2 cr). Fundamental Latin and Greek words used in the humanities and natural science; emphasis on terminology of fields in which students are interested; knowledge of Greek or Latin is not required.

FLEN **299** (s) **Directed Study** (cr arr). Prereq: perm.

FLEN **307 The European Union** (3 cr). A cross-cultural examination of the European Union, its history, evolution, and current functioning; social, cultural, and political differences among union partners; economic structure and demographics; business culture.

FLEN **313 Modern French Literature in Translation** (3 cr). Major modern French authors in English translation; knowledge of French is not required.

FLEN **315 French Cinema** (3 cr). Genre, structure, style of representation fiction and non-fiction films of France and the Francophone world.

FLEN **323-324 German Literature in Translation** (3 cr). A maximum of 3 cr in FLEN 323-324 may be counted toward a major in German. Major German-language authors in English translation; knowledge of German is not required.

FLEN **ID363-ID364 Literature of Ancient Greece and Rome** (3 cr). WSU Clas 363/364. FLEN 363: Greece. FLEN 364: Rome. Ancient culture primarily through writings of Greek and Roman poets, playwrights, thinkers, and historians in English translation; may take the form of a survey or center on a theme or genre; lec, disc, and writing.

FLEN **391 Hispanic Film** (3 cr). Open to all students. A maximum of 3 cr in FLEN 391, 393, and 394 may be counted toward a major in Spanish. Genre, structure, and style of representative fiction and nonfiction films of Spain and Latin America. May not receive credit in both FLEN 391 and Span 307.

FLEN **392 Contemporary European Fiction Film** (3 cr). History of contemporary European fiction film from the 1960s to the present; emphasis on major genres, movements, and directors such as Godard, Bergman, Bertolucci, Fassbinder, Wenders, Antonioni, Jancso, Fellini. Three lec and 2 hrs of screening a wk. Prereq: Intr 126 or Comm 288 or perm.

FLEN **393 Spanish Literature in Translation** (3 cr). A maximum of 3 cr in FLEN 391, 393, and 394 may be counted toward a major in Spanish. Major Spanish-language authors in English translation; knowledge of Spanish is not required.

FLEN **394 Latin American Literature in Translation** (3 cr). A maximum of 3 cr in FLEN 391, 393, and 394 may be counted toward a major in Spanish. Major Spanish-language authors in English translation; knowledge of Spanish is not required. (Alt/yrs)

FLEN **400** (s) **Seminar** (cr arr). Prereq: perm.

FLEN **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

FLEN **441 Ancient Greek Civilization** (3 cr). Same as Hist 444. Survey of development of Greek civilization, BC 2000-BC 300.

FLEN **442 Civilization of Ancient Rome** (3 cr). Same as Hist 446. Survey of development of Roman civilization, BC 800-AD 500.

FLEN **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

FLEN **481 Women's Literature** (3 cr). See Engl 481.

FLEN **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

FLEN **499** (s) **Directed Study** (cr arr). Prereq: perm.

CHINESE

Chin **WS101 Chinese First Semester** (4 cr). WSU Chin 101. May be used as core credit in J-3-a.

Chin **WS102 Chinese Second Semester** (4 cr). WSU Chin 102.

FRENCH

Fren **101-102 Elementary French I-II** (4 cr). Fren 101 may be used as core credit in J-3-a. Credit not given for both Fren 101-102 and 104. Pronunciation, vocabulary, reading, spoken French, and functional grammar. Students with two or more years of high school French may not enroll in Fren 101, but may earn credit for Fren 101 by advanced placement, i.e., by successfully completing a higher vertically related course.

Fren **103** (s) **French Language Lab** (1 cr, max 4). Practice in listening comprehension, pronunciation, and grammatical structures. Graded P/F. Coreq: elementary or intermediate French (Fren 101-102, 104, 201-202).

Fren **104 Elementary French Reviewed** (4 cr). Not open for credit to students who have taken Fren 101 or equivalent in college. Review of subject matter covered in Fren 101-102. Prereq: two years of high school French or perm.

Fren **200** (s) **Seminar** (cr arr). Prereq: perm.

Fren **201-202 Intermediate French I-II** (4 cr). Reading, grammar review, speaking, and writing. Prereq: Fren 102.

Fren **204** (s) **Special Topics** (cr arr). Prereq: perm.

Fren **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Fren **299** (s) **Directed Study** (cr arr). Prereq: perm.

Fren **301 Advanced French Grammar** (3 cr).

Fren **302 Advanced French Writing Skills** (3 cr). Recommended for students who wish to continue in upper-division French courses.

Fren **304 Connecting French Language and Culture** (4 cr). Practice of linguistic proficiencies within simulated cultural frames.

Fren **305 Reading French Texts** (3 cr). Development and practice of reading skills and strategies.

Fren **307 French Phonetics** (4 cr) (Fren 409). Contrastive analysis; acquisition and corrective practice of sounds and intonation patterns; phonetic description and transcription.

Fren **308 Advanced French Conversation** (3 cr) (Fren 411).

Fren **309 Practicum in Advanced Language Skills** (1 cr, max arr). Prereq: perm.

Fren **400** (s) **Seminar** (cr arr). Prereq: perm.

Fren **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Fren **407** (s) **Topics in French Literature** (3 cr, max 9).

Fren **408** (s) **Topics in French Culture and Institutions** (3 cr, max 9) (Fren 303).

Fren **415** (s) **Special Topics** (cr arr).

Fren **416 French Business** (3 cr).

Fren **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Fren **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Fren **499** (s) **Directed Study** (cr arr). Prereq: perm.

Fren **501** (s) **Seminar** (cr arr). Prereq: perm.

Fren **502** (s) **Directed Study** (cr arr). Prereq: perm.

Fren **504** (s) **Special Topics** (cr arr). Prereq: perm.

GERMAN

Germ **101-102 Elementary German I-II** (4 cr). Germ 101 may be used as core credit in J-3-a. Pronunciation, vocabulary, reading, spoken German, and functional grammar.

Germ **103** (s) **German Language Lab** (1 cr, max 4). Practice in listening comprehension and conversational skills. Graded P/F. Coreq: elementary or intermediate German (Germ 101-102, 201-202).

Germ **200** (s) **Seminar** (cr arr). Prereq: perm.

Germ **201-202 Intermediate German I-II** (4 cr). Review and practice of basic language skills; increased emphasis on reading and free discussion. Appropriate starting point for students with two or three yrs of high school German. Prereq: Germ 102 or equiv.

Germ **204** (s) **Special Topics** (cr arr). Prereq: perm.

Germ **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Germ **299** (s) **Directed Study** (cr arr). Prereq: perm.

Germ **321 German Conversation** (3 cr). Emphasis on developing proficiency in speaking and writing; discussion on topics of cultural interest. Prereq: Germ 202.

Germ **322 German Grammar and Composition** (3 cr). Emphasis on writing skills and various kinds of writing; selective review of German grammar and usage. Prereq: Germ 202.

Germ **325-326 German Culture and Institutions** (3 cr). May be taken in either order; survey of German cultural heritage from the earliest times to the present. Germ 325: development in the arts, philosophy, science, political and social thought through end of 19th century; history and political development of German nation. Germ 326: German society and political culture in 20th century; contemporary social and political institutions. Prereq or coreq: Germ 202.

Germ **327-328 Survey of German Literature** (3 cr). May be taken in either order; intro course in study of German literature. Germ 327: chronological survey of literature from earliest times to beginning of 19th century. Germ 328: representative works of modern literature from 19th and 20th centuries. Prereq: Germ 202.

Germ **329** (s) **German Language Lab** (1 cr, max 2). Advanced aural comprehension; everyday conversational situations, radio and TV programming. Graded P/F. Prereq: perm.

Germ **400** (s) **Seminar** (cr arr). Prereq: perm.

Germ **404** (s) **Special Topics** (cr arr). Prereq: perm.

Germ **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Germ **420** (s) **Readings in German Literature** (3 cr, max 9). For advanced students; focus on literary period, theme, genre, or work of a single author. Prereq: Germ 327 or 328, or perm.

Germ **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Germ **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Germ **499** (s) **Directed Study** (cr arr). Prereq: perm.

Germ **501** (s) **Seminar** (cr arr). Prereq: perm.

Germ **502** (s) **Directed Study** (cr arr). Prereq: perm.

Germ **504** (s) **Special Topics** (cr arr). Prereq: perm.

ANCIENT GREEK

Grek **200** (s) **Seminar** (cr arr). Prereq: perm.

Grek **204** (s) **Special Topics** (cr arr). Prereq: perm.

Grek **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Grek **299** (s) **Directed Study** (cr arr). Prereq: perm.

Grek **ID341-ID342 Elementary Greek** (4 cr). WSU Clas 341-342. Grek 341 may be used as core credit in J-3-a. Pronunciation, vocabulary, reading, and functional grammar.

Grek **ID349** (s) **Greek Language Lab** (1 cr, max arr). WSU Clas 349. A maximum of two credits may be earned in basic skills. Graded P/F. Prereq: perm.

Grek **400** (s) **Seminar** (cr arr). Prereq: perm.

Grek **404** (s) **Special Topics** (cr arr). Prereq: perm.

Grek **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Grek **ID441-ID442** (s) **Intermediate Greek** (4 cr, max arr). WSU Clas 441-442. Readings in classical Greek prose and poetry.

Grek **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Grek **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Grek **499** (s) **Directed Study** (cr arr). Prereq: perm.

JAPANESE

Japn **ID101-ID102 Elementary Japanese I-II** (4 cr). WSU Japn 101-102. Japn 101 may be used as core credit in J-3-a.

Japn **103** (s) **Japanese Language Lab** (1 cr, max 4). Practice in listening comprehension and conversational skills. Graded P/F. Coreq: Japn 101, 102, 201, or 202.

Japn **ID201-ID202 Intermediate Japanese I** (4 cr). WSU Japn 203, 304.

LATIN

Latn **101-102 Elementary Latin I-II** (4 cr). Latn 101 may be used as core credit in J-3-a. Pronunciation, vocabulary, reading, composition, and functional grammar.

Latn **103** (s) **Latin Language Lab** (1 cr, max 4). Elementary- and intermediate-level skills. Graded P/F. Prereq: perm.

Latn **200** (s) **Seminar** (cr arr). Prereq: perm.

Latn **204** (s) **Special Topics** (cr arr). Prereq: perm.

Latn **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Latn **299** (s) **Directed Study** (cr arr). Prereq: perm.

Latn **ID365-ID366 Survey of Latin Literature** (3 cr). WSU Clas 365-366. From early Latin to the Middle Ages.

Latn **ID369** (s) **Latin Language Lab** (1 cr, max arr). WSU Clas 369. Advanced-level expressive skills. Graded P/F. Prereq: perm.

Latn **400** (s) **Seminar** (cr arr). Prereq: perm.

Latn **404** (s) **Special Topics** (cr arr). Prereq: perm.

Latn **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Latn **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Latn **ID461-ID462** (s) **Latin Literature of the Empire** (3 cr, max 9). WSU Clas 461-462.

Latn **ID463-ID464** (s) **Latin Literature of the Republic** (3 cr, max 9). WSU Clas 463-464.

Latn **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Latn **499** (s) **Directed Study** (cr arr). Prereq: perm.

RUSSIAN

Russ **WS101 First Semester Russian** (4 cr). WSU Rus 101. May be used as core credit in J-3-a.

Russ **WS102 Second Semester Russian** (4 cr). WSU Rus 102.

Russ **WS203 Third Semester Russian** (4 cr). WSU Rus 203.

Russ **WS304 Intermediate Russian** (4 cr). WSU Rus 304.

Russ **WS305 Russian Conversation** (1 cr). WSU Rus 305.

Russ **WS307 Speaking Proficiency** (3 cr). WSU Rus 307.

Russ **WS317 Contemporary Russian Culture and Society** (3 cr). WSU Rus 317.

SCANDINAVIAN

Scan **WS101 First Semester Danish** (4 cr). WSU Scand 101.

Scan **WS102 Second Semester Danish** (4 cr). WSU Scand 102.

Scan **WS323 Masterpieces of Scandinavian Literature in Translation** (3 cr, max 6). WSU Scand 323.

SPANISH

Span **101-102 Elementary Spanish I-II** (4 cr). Span 101 may be used as core credit in J-3-a. Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar.

Span **103** (s) **Spanish Language Lab** (1 cr, max 4). Practice in listening comprehension and conversational skills. Graded P/F. Coreq: elementary or intermediate Spanish (Span 101-102 or 201-202).

Span **200** (s) **Seminar** (cr arr). Prereq: perm.

Span **201-202 Intermediate Spanish I-II** (4 cr). Reading, grammar review, speaking, and writing. Prereq: Span 102.

Span **204** (s) **Special Topics** (cr arr). Prereq: perm.

Span **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Span **299** (s) **Directed Study** (cr arr). Prereq: perm.

Span **301 Advanced Grammar** (3 cr). Recommended for prospective teachers of Spanish.

Span **302 Advanced Composition** (3 cr). Recommended for prospective teachers of Spanish. Prereq: Span 301.

Span **303 Spanish Conversation** (3 cr). Further development of speaking skills for advanced students; discussion on topics of current cultural interest. Prereq: Span 301 or perm.

Span **304 Spanish Phonetics** (3 cr). Phonetic description and phonemic analysis; stress, its nature and place; intonation patterns in conversation; transcription of prose and poetry. Prereq: Span 202 or equiv.

Span **305 Culture and Institutions of Spain** (3 cr). Prereq: Span 301 or 302, or perm.

Span **306 Culture and Institutions of Latin America** (3 cr). Prereq: Span 301 or 302, or perm.

Span **ID307 Hispanic Film** (3 cr). WSU Span 391. Genre, structure, and style of representative fiction and nonfiction films of Spain and Latin America. May be taken concurrently with Span 202 with perm of instructor; may not receive credit for both Span 307 and FLEN 391.

Span **308 Proficiency in Reading** (3 cr). Issues and methods of literary analysis; emphasis on reading, writing, and speaking skills in the target language. Prereq: Span 301 or perm.

Span **309 Spanish for Business** (3 cr). Emphasis on business Spanish. Recommended for students in Foreign Language Business Option. Prereq: Span 301, 302, or perm.

Span **310 Spanish for Professions** (3 cr). Spanish for law enforcement, tourism, and health professions. Prereq: Span 301, 302, or perm.

Span **389 Spanish Language Lab** (1 cr, max arr). Advanced conversational skills. Graded P/F. Prereq: perm.

Span **400** (s) **Seminar** (cr arr). Prereq: Span 301 or 302, or perm.

Span **401 Survey of Early Spanish Literature** (3 cr). Prereq: Span 301 or 302, or perm.

Span **402 Survey of Modern Spanish Literature** (3 cr). Prereq: Span 301 or 302, or perm.

Span **404** (s) **Special Topics** (cr arr). Prereq: Span 301 or 302, or perm.

Span **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Span **407 Survey of Early Spanish American Literature** (3 cr). Prereq: Span 301 or 302, or perm.

Span **408 Survey of Modern Spanish American Literature** (3 cr). Prereq: Span 301 or 302, or perm.

Span **410 Spanish for Teachers** (2 cr). Language and culture; pronunciation and diction.

Span **412 Spanish Short Fiction** (3 cr). The short story in 19th- and 20th-century Spain. Prereq: Span 301, 302, or perm.

Span **413 Spanish American Short Fiction** (3 cr). The short story in 19th- and 20th-century Spanish America. Prereq: Span 301, 302, or perm.

Span **414 Spanish Long Fiction** (3 cr). Major novels of Spain from the 19th century to the present. Prereq: Span 301, 302, or perm.

Span **415 Spanish American Long Fiction** (3 cr). Major novels of Spanish America from the 19th century to the present. Prereq: Span 301, 302, or perm.

Span **416 Ecuador: Culture/Literature** (3 cr). Survey of the literary and artistic heritage of Ecuador. Prereq: Span 301, 302, or perm.

Span **417 Modern Hispanic Poetry** (3 cr). Survey of 20th-century Spanish and Spanish American poetry. Prereq: Span 301, 302, or perm.

Span **418 Modern Chilean Fiction** (3 cr). Survey of 20th-century Chilean literature. Prereq: Span 301, 302, or perm.

Span **449** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Span **496** (s) **Proseminar** (1-3 cr, max 12). May be graded P/F when grading system is uniform for all students in the class. Prereq: perm.

Span **499** (s) **Directed Study** (cr arr). Prereq: perm.

Span **501** (s) **Seminar** (cr arr). Prereq: perm.

Span **502** (s) **Directed Study** (cr arr). Prereq: perm.

Span **504** (s) **Special Topics** (cr arr). Prereq: perm.

GENERAL COURSES

FL **200** (s) **Seminar** (cr arr). Prereq: perm.

FL **204** (s) **Special Topics** (cr arr). Prereq: perm.

FL **299** (s) **Directed Study** (cr arr). Prereq: perm.

FL **400** (s) **Seminar** (cr arr). Prereq: perm.

FL **404** (s) **Special Topics** (cr arr). Prereq: perm.

FL **499** (s) **Directed Study** (cr arr). Prereq: perm.

COURSES

Forest Products

Thomas M. Gorman, Acting Head, Dept. of Forest Products (102 FWR Bldg. 83844-1132; phone 208/885-9663).

PREREQUISITE: Courses in this subject field above 299 are not open to any undergraduate student who is on academic probation.

Note: Courses numbered ForP 460-472 (except 470) are taught at the University of Minnesota. UM is on the quarter system; however, credits are listed in this catalog in equivalent semester hours.

ForP **100 Forest Products Issues and Industries** (1 cr). Critical issues facing the forest products industry, manufacturing processes for wood products, and professional career opportunities. One lec or one half-day lab trip a wk (4-6 lab trips to local forest products manufacturing sites).

ForP **WS201 Introduction to Construction** (2 cr). WSU Cst M 201.

ForP **203** (s) **Workshop** (cr arr). Prereq: perm.

ForP **204** (s) **Special Topics** (cr arr). Prereq: perm.

ForP **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

ForP **230 Forest Land Measurements I** (1 cr). Distance, precision, and allowable error; slope and horizontal distance concepts; field book; pacing, chaining, and taping; direction measurements with hand-held and staff compasses; declination and area calculation; traversing and traverse closure. Two lec and one 3-hr lab a wk for 5 wks. Prereq: Math 143 or equiv.

ForP **231 Forest Land Measurements II** (1 cr). Vertical distance concepts; traverse closure software; contour mapping and mapping software; triangulation applications; public land surveying and the application and use of levels, theodolites, transits, and other tripod instruments. Two lec and one 3-hr lab a wk for 5 wks. Prereq: ForP 230.

ForP **232 Forest Land Measurements III** (1 cr). Advanced use and application of instruments including electronic distance measurement and global positioning systems; stadia; curve geometry and layout; coordinate system; road plan and profile. Two lec and one 3-hr lab a wk for 5 wks. Prereq: ForP 231.

ForP **250 Principles of Forest Products** (2 cr). Wood in our society, effect of silviculture on wood properties, harvesting and transportation, wood manufacturing technologies, wood products and applications, and future directions in the wood industry. One or two optional half-day field trips.

ForP **ID277 Wood Structure and Identification** (3 cr). WSU NATRS 321. Anatomy and chemical composition of commercial wood species; gross and minute structural characteristics of wood leading to identification. Prereq: ForP 250 or perm.

ForP **299** (s) **Directed Study** (cr arr). Prereq: perm.

ForP **302 Wildland Field Ecology** (2 cr). Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235 and For/Rnge/WLF 221.

ForP **336 Introduction to the Pulp and Paper Industry** (1 cr). Chip supply, quality, and handling; pulping and bleaching; pollution abatement; papermaking; and paper characteristics and utilization. Three half-day field trips.

ForP **337 Physical and Mechanical Properties of Wood** (3 cr). Properties of wood as they relate to physical behavior and product application; other related topics include biodeterioration, machining and adhesive technology, and strength considerations. Prereq: ForP 277 or perm.

ForP **365 Wood Building Technology** (3 cr). Basic structural design including elementary statics and principles and technology of wood structural design. Prereq: Phys 100, Phys 111 or perm.

ForP **400** (s) **Seminar** (cr arr). Prereq: perm.

ForP **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

ForP **403** (s) **Workshop** (cr arr). Prereq: perm.

ForP **404** (s) **Special Topics** (cr arr). Prereq: perm.

ForP **405** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

ForP **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

ForP **J410/J510 Wood Properties, Processes, and Uses** (1-2 cr). Open to non-majors only. Physical, mechanical, and chemical properties of wood and wood products; timber harvesting technologies; and issues in use of wood products. Additional projects/assignments reqd for grad cr. Graded P/F. Five days of workshop, including field trip.

ForP **420 Pulp and Paper Technology** (3 cr). Technological overview of chemical and physical processes involved in conversion of wood into paper. Two or three optional half-day field trips. Prereq: organic chemistry or perm.

ForP **WS425 Wood, Wood Products, and Marketing** (2 cr). WSU NATRS 420/520. Domestic and international markets for forest products; overview of forest products market research marketing techniques; accessing and developing forest products markets. Prereq: ForP 250. (Alt/yrs)

ForP **426 Quality Control in Wood Products Manufacture** (2 cr). Quality control in the wood products industry; statistical process control in wood products processing; field and mill applications of forest products measurement tools and diagnostic software related to log breakdown, lumber recovery, lumber size variability, and green lumber target sizes. Three lec and one 5-hr lab a wk (may include one to four field trips) for 8 weeks. Prereq: Stat 251, ForP 277 or perm.

ForP **ID430 Forest Engineering and Harvesting** (3 cr). WSU NATRS 320. Survey of logging equipment capabilities; intro to cable logging systems, road layout, and design; cost analysis of logging systems; development of road and logging plans. Three days of field trips. Prereq: ForP 230 or perm.

ForP **ID431 Production and Cost Control in Forest Industry** (3 cr). WSU NATRS 439. Intro to production planning and cost control for timber harvesting and forest products processing operations; development and application of machine rates and system production rates; breakeven analysis; machine replacement; cash flow in investment decisions; use of microcomputers in analysis. Prereq: ForP 250 or equivalent or perm. (Alt/yrs)

ForP **ID432 Low Volume Forest Roads** (3 cr). WSU NATRS 432. Road classification; design of forest roads; construction techniques; costing, environmental considerations, design project. Three days of field trips. Coreq: ForP 430. (Alt/yrs)

ForP **ID433 Forest Tractor System Analysis** (3 cr). WSU NATRS 433. Planning, layout, and cost analysis of forest tractor systems, production estimating, machine capabilities, and options; layout project. Three days of field trips. Prereq: ForP 430 or equiv. (Alt/yrs)

ForP **ID434 Cable Systems Analysis** (3 cr). WSU NATRS 434. Layout, planning, and design for cable logging systems; analysis of forces involved in cable logging; crew and terrain requirements; layout and design project; cost and equipment analysis. Three 1-day field trips. Prereq: ForP 430 or equiv. (Alt/yrs)

ForP **436 Wood Composites** (3 cr). Raw material, processes, properties, and markets for a number of wood composites made of particles and fibers. One full-day field trip. Prereq: ForP 277. (Alt/yrs)

ForP **437 Wood as a Structural Material** (2 cr). Applications of mechanical behavior to wood and wood composites; structural consideration and computer analysis of wood materials, including engineered products, panels, trusses. Prereq: ForP 337 or 365.

ForP **438 Wood Chemistry** (3 cr). Aspects of wood chemistry in relation to its application, including utilization of wood, wood residues, and pulping by-products; pulping chemistry, pulp bleaching, and cellulose derivatives. One or two optional half-day field trips. Prereq: organic chemistry. (Alt/yrs)

ForP **444 Lumber Manufacturing** (3 cr). Raw materials, production methods, drying product specifications, and grading for sawn wood products; plant layout, machines, and systems analysis; plant tours. Two lec and one 5-hr lab a wk. Prereq: ForP 277 or perm.

ForP **450 Wood Deterioration and Preservation** (2 cr). Thermal, biotic, and abiotic agents that cause wood deterioration; biological control methods; design considerations; wood preservatives and preservative systems; treatability of wood; treatment mechanics; pollution control systems; preservative effectiveness; standards; environmental concerns and law. Prereq: ForP 277 or perm.

ForP **460 Wood Industry Tours** (1.3 cr; see headnote). Visits to a number of firms involved with various facets of forest products industry.

ForP **461 Wood Fluid Relationships** (2 cr; see headnote). Moisture in wood and its relationship to density and specific gravity, shrinking and swelling, electrical properties, strength properties, thermoconductivity, sorption isotherms, dimensional stabilization, permeability and diffusion.

ForP **462 Analysis of Production Systems** (2 cr; see headnote). Engineering and economic analysis of manufacturing and distribution systems for wood-based products; material balances, equipment selection, economic analysis, and presentation techniques.

ForP **463 Pulp and Paper Process Lab** (2 cr; see headnote). Chemical and mechanical pulping, pulp preparation, secondary fiber, de-inking, wet end additives; lab problems and exercises supplemented by lec. One lec and one hr of lab a wk.

ForP **464 Pulp and Paper Process Calculations** (2.7 cr; see headnote). Chemical and physical process calculations; steady and unsteady state material and energy balances applied to pulping and papermaking processes.

ForP **465 Pulp and Paper Process Operations** (2.7 cr; see headnote). Application of principles of momentum, heat, and mass transfer to unit operations in pulp and paper industry; fluid transport; filtration; sheet forming, sedimentation, heat exchange, evaporation, gas absorption and stripping; distillation, leaching extraction, crystallization, humidification, and drying.

ForP **466 Paper Engineering Lab** (1.3 cr; see headnote). Experiments designed to illustrate principles of momentum, heat, and mass transfer using the pilot-plant paper machine and coater.

ForP **467 Coated Product Development** (1.3 cr; see headnote). Coating process and products (primarily paper); theory, techniques, and procedures for formulating and applying coatings; properties and uses of coated products.

ForP **469 Surface and Colloid Chemistry of Papermaking** (2 cr; see headnote). Principles of surface and colloid chemistry applied to basic problems in pulp and paper manufacturing operations and products uses.

ForP **470 Interdisciplinary Natural Resource Planning** (3 cr). Land use planning and decision-making theories, legislation and techniques applied to natural resource case studies from public and private sector, including impact assessment, creation and valuation of alternatives, and public involvement. Two hrs of lec, 2 hrs of lab, and 1 hr of recitation a wk; may include one 1-day field trip. Prereq: senior standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302; or perm.

ForP **471 Pulp and Paper Process Dynamics and Control** (2 cr; see headnote). Theory and practice of process control in the pulp and paper industry: sensors, control equipment and algorithms, final cost elements; applications to industrial pulp and paper manufacturing, available hardware and software.

ForP **472 Biological and Environmental Science of Pulp and Paper** (2 cr; see headnote). Biology and chemistry of the pulp and paper processes are related to their impacts on the environment; treatment of process effluents and discharges, government regulations and industry compliance; theory, design, and operation of equipment for the treatment or prevention of environmental impact.

ForP **WS475 Estimating I** (3 cr). WSU Cst M 470.

ForP **J477/J577 Forest Products Business Management** (2 cr). Business plans for primary and secondary wood products processing businesses; preliminary technical and economic modeling of wood products manufacture; process systems analysis; commercial aspects, principles and terminology of the international timber trade. Graduate students in ForP 577 serve as group leaders on field projects. One field lab. Prereq: ForP 277, 444 or perm.

ForP **480 Senior Project** (2 cr). Case studies involving analysis of forest industry problems and issues; open-ended projects involving wood design and construction; problems addressed individually or in project teams. Field trips. Prereq: senior standing.

ForP **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

ForP **496 Forest Products Seminar** (1 cr). Contemporary problems relevant to the manufacture of wood products.

For **497 Senior Thesis** (2-4 cr, max 4). Independently plan and conduct a thesis project; write and defend the thesis under supervision of an adviser. Prereq: senior standing and minimum 3.20 GPA or perm.

ForP **498 Renewable Natural Resources Internship** (cr arr) (ForP 397-398). Supervised field experience with an appropriate public agency or private company. Required for students in the Forest Products Business Management option and for cooperative education students. Graded P/F. Prereq: perm of adviser.

ForP **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: sr standing, GPA 2.5, or perm.

ForP **500 Master's Research and Thesis** (cr arr).

ForP **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of forest products industries; presentation of individual studies on assigned topics. Prereq: perm.

ForP **502** (s) **Directed Study** (cr arr). Prereq: perm.

ForP **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

ForP **504** (s) **Special Topics** (cr arr). Prereq: perm.

ForP **505** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

ForP **510 Wood Properties, Processes, and Uses** (1-2 cr). See ForP J410/J510.

ForP **522 Advanced Forest Roads** (3 cr). Field layout of L-line in a forest setting; curves; slope staking and clearing limits; lab analysis of soil for subgrade; lab analysis of gravel for surfacing; stability analysis; costing of alternatives. Prereq: ForP 430. (Alt/yrs)

ForP **534 Advanced Techniques of Timber Harvesting Analysis** (3 cr). Layout, planning, and cost analysis of timber harvesting systems using available computer analysis techniques and program; analysis of road cost and stability problems; cost control of logging operations. Two lec and one 3-hr lab a wk; three 1-day field trips. Prereq: ForP 430 or equivalent or perm. (Alt/yrs)

ForP **WS535 Nondestructive Testing of Structural Materials** (3 cr). WSU C E 536.

ForP **541 Issues in Renewable Natural Resource Industries** (2). Overview of renewable natural resource base industries with focus on forest products, range livestock, and tourism; review of historical and economic base for industries and current social, biological, and economic issues of importance.

ForP **545 Forest Ecosystem Management: Practices and Issues** (2 cr). Issues associated with integrated forest practices that can sustain forest products, restore damaged ecosystems, and maintain natural processes, including the silvicultural systems, harvest methods, and prescribed fire applications suitable for low-impact management in forest ecosystems.

ForP **550** (s) **Advanced Wood Technology** (1-3 cr, max 6). Advanced wood utilization and technology to include topics such as wood protection and preservation, advanced drying and moisture movement, gluing and finishing, engineered and composite wood products, energy; specific topics change yearly. May be repeated for cr to a maximum of 6 cr with perm and different topic. One to three days of field trips. Prereq: ForP 337 or perm.

ForP **577 Forest Products Business Management** (3 cr). See ForP J477/J577.

ForP **597** (s) **Practicum** (cr arr). Prereq: perm.

ForP **598** (s) **Internship** (cr arr). Prereq: perm.

ForP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

ForP **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Forest Resources

Jo Ellen Force, Head, Dept. of Forest Resources (204 FWR Bldg. 83844-1133; phone 208/885-7952; e-mail fores@uidaho.edu).

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

For **102 Introduction to Forest Management** (1 cr). Intro to forestry, current management issues, timber and non-timber resources, educational and professional opportunities.

For **208 Community and Urban Forestry** (2 cr). Community or urban environment as affected by its included forest; forest components, benefits, liabilities, values, ordinances, and issues; management by selection, design, planting, care, and maintenance.

For **221 Natural Resources Ecology** (3 cr). Principles of plant and animal ecology with emphasis on concepts applied in natural resources, including interactions between organisms and their physical environment, evolutionary processes, populations, communities, energy flow and ecosystems, and conservation biology. Recommended preparation: Biol 202 and 203. Prereq: Biol 100 or 201, or perm.

For **235 Society and Natural Resources** (3 cr). Same as RRT 235. The social sciences applied to natural resources management; relationship between natural resources and human socioeconomic systems; analysis of resource issues.

For **270 Principles of Forest Ecosystem Management** (2 cr). Forest resources, regions, and management objectives; silvicultural principles and practices employed in management of forest ecosystems; interrelations between uses of forest land. Two 1-day field trips.

For **274 Forest Measurement Techniques** (1 cr). Practical techniques in measuring forest land and in measuring and inventorying forest resources. Two hrs of lec and one 3-hr lab a wk for 5 wks. Prereq: course in trigonometry and college algebra.

For **294 Quantitative Resource Analysis** (3 cr). Application of mathematical and statistical concepts to resource management problems using PC-based computer skills: a programming language along with spreadsheet/database and statistical application programs. Two lec and one 2-hr lab a wk. Prereq: Stat 251; coreq: Math 160 or perm.

For **299** (s) **Directed Study** (cr arr). Prereq: perm.

For **302 Wildland Field Ecology** (2 cr). Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks of all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235 and For/Rnge/WLF 221.

For **ID&WS306 Wildland Resource Conservation** (3 cr). WSU NATRS 303. Not open to majors in the dept. Concepts of forest and rangeland ecology; major resources of wildlands, principles of conservation and management application to wildlands.

For **ID&WS307 Wildland Resource Conservation Lab** (1 cr). WSU NATRS 303. Descriptive survey of renewable natural resources; emphasis on Idaho's flora and fauna. Two hrs of lab a wk; three days of field trips. Coreq: For 306.

For **320 Dendrology** (3 cr). Identification, classification, distribution, and associations of the important tree species of the U.S.; important regional shrubs. Two lec and two 2-hr labs a wk; one 1-day field trip. Prereq: Biol 203 or perm.

For **324 Silviculture I** (2 cr). Natural and artificial regeneration of forest ecosystems; management of the gene pool, selection of seed source and stock type; site preparation methods to establish regeneration. One lec and one 4-hr lab a wk. Prereq: For 270, For/Rnge/ForP/WLF/Fish/RRT 302, and Soil 205, 206.

For **330 Forest Ecosystem Processes** (3 cr). Chemical, physical, and physiological processes that determine how trees and forests function; emphasis on carbon budgets, productivity, consequences of forest management, and global climate change. Two lec and one 2-hr lab a wk; one field trip. Prereq: Soil 205, Math 143 or 160, high school physics or Phys 100 or 111, or perm.

For **361 Farm and Natural Resource Appraisal** (3 cr). See AgEc 361.

For **ID&WS374 Forest Mensuration** (3 cr). WSU NATRS 313. Principles of log, tree, and stand measurements; elementary sampling and inventory procedures; growth and yield. Three hrs of lec and one 1-hr recitation a wk. Prereq: For 274, 294; Stat 251; and Math 160 or 170.

For **375 Airphoto Interpretation and Mapping** (3 cr). Methods and techniques of obtaining quantitative and qualitative spatial information from aerial photographs, maps, and the Global Positioning System for input into geographic information systems and planning processes for natural resources land management. Two lec and one 2-hr lab a wk. Prereq: college algebra.

For **383 Economics for Natural Resource Managers** (3 cr). Same as AgEc 383. Role of economic forces in resource analysis and conservation; planning of forest resource use by the firm and society. Prereq: Econ 202; Math 160; For/RRT 235, or perm.

For **398** (s) **Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

For **400** (s) **Seminar** (cr arr). Prereq: perm.

For **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

For **403** (s) **Workshop** (cr arr). Prereq: perm.

For **404** (s) **Special Topics** (cr arr). Prereq: perm.

For **405** (s) **Professional Development** (cr arr). Professional education and enrichment of forestry personnel. Credit earned in this course will not be accepted toward graduate degree programs but may be used for undergraduate programs. Prereq: perm.

For **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

For **J412/J512 Artificial Regeneration** (2 cr). Methods of cone collection, seed extraction, and storage; seedling procurement contracts; seedling handling and storage; planting contracts; regeneration surveys; plantation failure diagnosis. Cr earned in For 512 by preparation of paper on approved regeneration topic. One lec and one 3-hr lab a wk. Prereq: perm. (Alt/yrs)

For **ID-J413/ID-J513 Forest Nursery Management** (2 cr). WSU NATRS 413/513. Forest nursery design considerations; seed processing and quality; nursery equipment and cultural practices; seedling quality. Cr earned in For 513 by preparation of paper on nursery design and growing regimes for assigned species. Two 1-day field trips. (Alt/yrs)

For **WS415 Airphotos and Geomorphology** (3 cr). WSU SoilS 474.

For **ID-J420/ID-J520 Tropical Dendrology/Ecology** (3 cr). WSU NATRS 422/522. Distribution, physiognomy, and climate of world tropical and subtropical vegetation types; identification, ecology, and uses of major pantropical trees and associated vegetation. Cr earned in For 520 by preparation of paper on a specific genus or species. Two lec and 4 hrs of lab a wk. Prereq: perm. (Alt/yrs)

For **423 Forest Community Ecology** (1 cr). Graded P/F. Principles of synecology related to vegetation classification and interpretation of structural and compositional change in communities following disturbance; practice in plant association/habitat type delineation as applied in western U.S. Accelerated first nine wks; eight lec periods and four 8-hr field trips. Prereq: For 221, Bot 241.

For **424 Silviculture II** (2 cr). Methods and techniques for manipulation of forest ecosystems to meet management objectives; intermediate stand tending; forest health, landscape silviculture, and prescription writing. One lec and one 4-hr lab a wk. Prereq: For 324 or perm.

For **426 Wildland Fire Management and Ecology** (3 cr). Integrated fire-related biological, ecological, physical, and economic information for land managers; autecology and synecology of plant and animal species in wildlands; natural role of fire; fire as a management tool; application to current issues. Two days of field trips. Prereq: For/Rnge/WLF 221.

For **427 Prescribed Burning Lab** (2 cr). Fire use planning with emphasis on preparation, execution, and evaluation. Eight days of field trips. Prereq: For 426, sr standing, and perm. (Alt/yrs)

For **432 Tree Physiology** (3 cr). Fundamental physiological processes with emphasis on those unique to woody perennial plants. Prereq: Bot 203. (Alt/yrs)

For **455 Forest Soils: Morphology, Function, and Spatial Dynamics** (3 cr). See Soil 455.

For **J458/J558 Agroforestry** (3 cr). See Rnge J458/J558.

For **J462/J562 Watershed Management** (2 cr). Influence of land management practices on streamflow, water quality, and riparian habitat. Additional projects/assignments reqd for grad cr. Two days of field trips. Prereq: For/Rnge/WLF 221 or perm.

For **465 Forest Protection** (2 cr). Key abiotic and biotic disturbance factors; causal relationships, forest dynamics interactions, effects on product or amenity value yields; management considerations; hazard predictions, silvicultural preventions and controls. Two days of field trips. Prereq: For 424 or perm.

For **466 Forest Disease and Insect Problems** (3 cr). Diagnosis of major diseases and insect problems in forests; emphasis on evaluations of their impacts and practical methods of alleviation; presented in context of ecosystem interactions and dynamics. Two lec and 6 hrs of lab a wk; occasional field lab.

For **470 Interdisciplinary Natural Resource Planning** (3 cr). Land use planning and decision making theories, legislation and techniques applied to natural resource case studies from the public and private sector, including impact assessment, creation and valuation of alternatives, and public involvement. Two hrs of lec, 2 hrs of lab, and 1 hr of recitation a wk; may include one 1-day field trip. Prereq: senior standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302; or perm.

For **ID472 Remote Sensing of Environment** (3 cr). WSU SoilS 472. Current systems, data acquisition on ground and from remote locations, instrumentation, imagery interpretation and analysis, applications for natural resources.

For **474 Forest Resource Inventories** (3 cr). Log scaling; defect determination in standing trees; fixed plot, variable plot, and 3-P sampling; cruise design and implementation; timber appraisal; stem analysis; regeneration, downed woody fuel, and watershed surveys. Two lec and 3 hrs of lab a wk; two 1-day field trips. Prereq: For 274, 374, and perm.

For **476 Forestry Project Evaluation** (3 cr). Applied financial and economic analyses of site-level integrated resources decisions in forested ecosystems; commodity and intangible resource valuation; optimal management regimes of timber and non-commodity resources; joint production feasibility; links to forest planning and international development; forest taxation. Three hrs of lec and 1 hr of application lab a wk. Prereq: For 270, 383, or perm.

For **ID477 Integrated Forest Management Models** (3 cr). WSU NATRS 440. Applied mathematical programming techniques for simultaneous multiple product, intertemporal and interspatial decisions in forest planning; procedures to coordinate site projects, area analysis, strategic forest plans, and regional forest resource policies. Three hrs of lec and 1 hr of applications lab a wk. Prereq: For 270, 294, 383 or perm.

For **478 Western Forestry Practices** (1 cr). Graded P/F. Field tour of coastal and transition forests; comparative analysis of differing forest management strategies and practices. One 8-day field trip. Prereq: sr standing or perm.

For **479 Forest Contracting** (2 cr). Basic principles and practical application of contracts for a range of natural resource management activities including timber sales, site preparation, and tree planting; on-site contract inspection, bonding, and insurance. Two 1-1/2 hr lec/lab a wk; three 1/2-day field trips. Prereq: senior standing. (Alt/yrs)

For **480 Senior Project Planning** (1 cr). Planning, writing, and talking about a proposed senior project (thesis or internship); taken before or concurrently with 485 or 497. Prereq: senior standing.

For **481 Senior Project Presentation** (1 cr). Reporting and presenting the senior project (thesis or internship); taken after or concurrently with 485 or 497. Prereq: For 480.

For **484 Forest Policy and Administration** (2 cr). Evaluation of land and forest problems and policies in the U.S.; analysis of current conditions and policies; historical development of governmental and private agencies concerned with the administration of forest conservation program.

For **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

For **494 Models for Resource Decisions** (4 cr). Same as ForP 494. Use of mathematical models of resource systems to explore management strategy; problem analysis; systems concepts and optimization of resource allocation. Prereq: Math 160 or 170; prereq or coreq: Stat 251 or equivalent.

For **J495/J595 International Wildland Management** (1-3 cr, max 3). World approaches and problems. Additional projects/assignments reqd for grad cr. Prereq: sr or grad standing and perm.

For **J496/J596 Field Studies in Tropical Ecology and Dendrology** (3 cr). Extensive three-wk field course in the tropics; emphasis on primary and secondary vegetation types, land-use problems, utilization of pantropical trees. Graded P/F. Additional projects/assignments reqd for grad cr. Prereq: For J420/J520 and perm.

For **497** (s) **Senior Thesis** (2-4 cr, max 4). Independently plan and conduct a thesis project; write and defend the thesis under supervision of an adviser. Prereq: senior standing and minimum 3.20 GPA or perm.

For **498** (s) **Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public or private agency. Required for cooperative education students. Prereq: perm of dept.

For **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: sr standing, GPA 2.5, and perm.

For **500 Master's Research and Thesis** (cr arr).

For **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

For **502** (s) **Directed Study** (cr arr). Prereq: perm.

For **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

For **504** (s) **Special Topics** (cr arr). Prereq: perm.

For **ID510 Fundamentals of Research** (3 cr). WSU BSysE 510. Same as CS 507. The research process and the graduate research project; objectives, techniques, and challenges; scientific method and the design process; use of the literature; creativity; writing and speaking about research; preparation of a research proposal.

For **WS511 Introduction to Population Genetics** (3 cr). WSU Bio S 519.

For **512 Artificial Regeneration** (2 cr). See For J412/J512.

For **ID513 Forest Nursery Management** (2 cr). See For J413/J513.

For **ID520 Tropical Dendrology/Ecology** (3 cr). See For J420/J520.

For **523 Landscape Silviculture** (3 cr). Theoretical basis for application of silvicultural systems to forested landscapes; practical exercises to develop silvicultural practices designed to change forest patterns, processes, and dynamics; linkages to sustainable, functioning forest ecosystems at the landscape level. Two days of field trips. Prereq: silviculture and forest protection courses or equiv.

For **524 Quantitative Silviculture** (2 cr). Quantifying site quality, measures of stand density, predicting forest growth and yield, simulation models, and use of simulation models in silvicultural prescriptions. (Alt/yrs)

For **525 Advanced Silviculture** (3 cr). Silvicultural systems and cultural practices; design of silvicultural prescriptions. Term project, field labs, and two days of field trips. Prereq: For 424 and/or perm. (Alt/yrs)

For **526 Fire Ecology** (3 cr). Fire-related ecology of plant and animal species in wildlands; effects of fire occurrence and suppression on physical environment, landscapes, and processes in both natural and managed ecosystems. Two days of field trips. Prereq: general ecology course. (Alt/yrs)

For **527 Landscape Ecology of Forests and Rangelands** (2-3 cr). Ecological relationships of biotic communities in heterogeneous environments, spatial and temporal patterns, importance of landscapes in maintenance of ecosystem diversity and function. One 2-hr lecture/discussion a week based on extensive reading of current literature and case studies. In addition, those students taking 3 credits will meet an additional hour a week, focusing on quantitative landscape analysis, and they will participate in a 2-day field trip. Prereq: upper-division plant or animal ecology. (Spring only)

For **ID528 Forest Gene Resource Management** (3 cr). Same as Gene 528. WSU NATRS 527. Genetic principles applied to forest ecosystem management; the origin and functions of genetic diversity; implications of silvicultural practices and ecosystem management on gene pools; management for genetic change; genetic considerations in conservation of forest ecosystems. One 3-hr discussion a wk based on readings of current and classic literature; two to three days of field trips. Prereq: For 270 or perm. (Alt/yrs)

For **540 Conservation Genetics** (3 cr). Basic principles of population genetics and phylogenetics and their applications to the field of conservation genetics and natural resource management; case studies and examples from current literature; topics include genetic diversity, inbreeding, population structure, gene flow, genetic drift, molecular phylogenetics, and hybridization.

For **545 Forest Ecosystem Management: Practices and Issues** (2 cr). Issues associated with integrated forest practices that can sustain forest products, restore damaged ecosystems, and maintain natural processes, including the silvicultural systems, harvest methods, and prescribed fire applications suitable for low-impact management in forest ecosystems.

For **549 Tropical Soils** (3 cr). See Soil 549. (Alt/yrs)

For **550 GIS Topics in Ecosystem Analysis** (2 cr). Evaluation and discussion of current issues regarding the techniques, instrumentation, and application of GIS technology in ecosystem analysis. Prereq: experience with ARC/INFO or other GIS and perm.

For **558 Agroforestry** (3 cr). See Rnge J458/J558.

For **562 Watershed Management** (2 cr). See For J462/J562.

For **566 Disease and Insect Problems** (2-4 cr). Field and laboratory techniques used to study and work with viruses, bacteria, fungi, mites, insects, animals, etc., that affect trees; emphasis on the role of each entity in dynamic forest ecosystems. Prereq: For 466 or perm.

For **ID&WS572 Spatial and Biophysical Modeling** (3 cr). WSU SoilS 574. Development of concepts, techniques, and methods for the fusion of remote sensing, GIS and biogeochemical modeling techniques for analyzing energy and material pathways and cycles; review latest methods for temporal and spatial scaling of datasets and models to develop and test hypotheses for understanding forest ecosystem structure and function.

For **573 Advanced Aerial Photo Interpretation** (2-3 cr). Project planning; interpretation of vegetation, landforms, land use, disease and insect infestation, pollution, sequential changes, high-altitude-satellite imagery; mapping, photo-mensurational techniques; multistage sampling, and special problems. One lec and one 2- or 4-hr lab a wk; two 1-day field trips. Prereq: For 375 or equivalent, or perm. (Alt/yrs)

For **575 Advanced Forest Management** (2 cr). Forest regulation; recent development in applied forest management and important contributions in forest management. (Alt/yrs)

For **577 Macro-forestry Management Analysis** (2 cr). Procedures, models, and cases integrating natural resource project decisions with area analyses, strategic forest plans, and forest sector policy. Two lec and 1 hr of lab a wk. Prereq: For 476, 477 or perm.

For **ID581 Integrated Forest Resource Economics** (2 cr). WSU NATRS 511. Microeconomic theory of forest resource production and supply; valuing non-commodity and intangible forest resources; optimizing jointly produced resources; hierarchical decision analysis, case studies and policy evaluation. Prereq: undergraduate course in natural resource economics or perm. (Alt/yrs)

For **584 Natural Resource Policy Development** (2 cr). The development of natural resource policy with emphasis on the policy process in the legislative branch of U.S. government; the role of and interrelationships between staff, committees, agencies, and elected officials; the relationship of science and scientists with policy and politicians in the development of natural resource policy, including preparation of testimony related to natural resource science and policy issues. Prereq: undergraduate course in natural resource policy or political science or perm. (Alt/yrs)

For **585 Natural Resources Policy Analysis** (2 cr). Theories of policy analysis, natural resource policy formulation, and applications for developing policy-relevant information. Prereq: undergraduate course in natural resource policy or political science or perm. (Alt/yrs)

For **586 Social Ecology of Natural Resources** (3 cr). Same as RRT 586. Social theory and methods relevant to resource management; interdisciplinary examination of specific natural resource issues such as fire management, wilderness, fisheries disputes, energy policy; emphasis on understanding social aspects of natural resources within an ecological perspective.

For **589 Water Resources Seminar** (1 cr). See Intr 589.

For **595 International Wildland Management** (1-3 cr, max 3). See For J495/J595.

For **596 Field Studies in Tropical Ecology and Dendrology** (3 cr). See For J496/J596.

For **597** (s) **Practicum** (cr arr). Prereq: perm.

For **598** (s) **Internship** (cr arr). Prereq: perm.

For **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

For **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Forestry, Wildlife and Range Sciences (General)

Charles R. Hatch, Dean (202C FWR Bldg. 83844-1131; phone 208/885-2397).

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any student who is on academic probation.

FWR **101 Forestry Orientation** (1 cr). Intro to forestry and related wildland management professions.

FWR **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

FWR **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

FWR **204; 404** (s) **Special Topics** (cr arr). Prereq: perm.

FWR **299; 502** (s) **Directed Study** (cr arr). Prereq: perm.

FWR **310 Leadership for Natural Resources Management** (1 cr). Principles and practices of leadership; topics include goal setting and reflection, interpersonal communication, group dynamics and cooperation, and basic leadership skills. One 16-hour retreat, six 2-hr class sessions, two oral presentations, and one leadership project that contributes to the College of Forestry, Wildlife and Range Sciences, the University of Idaho, or the community.

FWR **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

FWR **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: sr standing in the College of FWR, GPA 2.5, and perm.

FWR **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

FWR **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

FWR **504** (s) **Special Topics** (cr arr). Prereq: perm.

FWR **597** (s) **Practicum** (cr arr). Prereq: perm.

FWR **598** (s) **Internship** (cr arr). Prereq: perm.

FWR **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

FWR **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Genetics

Faculty: Lauren Fins, Holly A. Wichman, Raymond J. Hoff, Geral I. McDonald, Gerald E. Rehfeldt.

Though there is no genetics degree per se at the University of Idaho, many degrees emphasize genetics. Information about research programs, specifics of courses, and academic advising is available from any member of the genetics faculty.

Gene **200** (s) **Seminar** (cr arr). Prereq: perm.

Gene **299** (s) **Directed Study** (cr arr). Prereq: perm.

Gene **314 General Genetics** (3 cr). See Biol 351.

Gene **315 Experimental Genetics** (2 cr). See Biol 352.

Gene **320 Genetics of Farm Animals** (3 cr). See AVS 330.

Gene **400** (s) **Seminar** (cr arr). Prereq: perm.

Gene **499** (s) **Directed Study** (cr arr). Prereq: perm.

Gene **501** (s) **Seminar** (cr arr). Prereq: perm.

Gene **502** (s) **Directed Study** (cr arr). Prereq: perm.

Gene **WS505 Introduction to Population Genetics** (3 cr). WSU Bio S 519.

Gene **528 Forest Gene Resource Management** (3 cr). See For 528.

Geography

Harley E. Johansen, Head, Dept. of Geography (203 McClure Bldg. 83844-3021; phone 208/885-6216; geog@uidaho.edu).

Geog **100 Physical Geography** (4 cr). May be used as core credit in J-3-b. Natural environment; nature, distribution, and relationships of climate, landforms, oceans, vegetation, hydrography, and soils. Three lec and one 2-hr lab a wk; may involve evening classes.

Geog **165 Human Geography** (3 cr). Intro to geographical dimension in human behavior and how this is evident in population distribution, rural and urban land use, and social, economic, and political attributes of societies.

Geog **180 Spatial Graphics** (3 cr). An introduction to the graphic language of maps, map reading and interpretation, map use, map technology. Two lec and 1 hr of lab a wk.

Geog **200 World Regional Geography** (3 cr). May be used as core credit in J-3-e. Countries, regions, and peoples of the world; interrelationships between humans and their physical and cultural environments.

Geog **201** (s) **Seminar** (cr arr). Prereq: perm.

Geog **203** (s) **Workshop** (cr arr). Prereq: perm.

Geog **204** (s) **Special Topics** (cr arr). Prereq: perm.

Geog **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Geog **240 Economic Geography** (3 cr). Reciprocal relations between people and the earth environment within an economic framework; resource distribution, developmental alternatives, movement, processing and industrialization, local to global perspective, theories and case studies.

Geog **280 Cartographic Production Techniques** (4 cr). Practical production and design of finished maps for publication using methods appropriate for the task; emphasis on the process of reducing real-world phenomena and spatial relationships into well designed maps that effectively convey information visually. One lec and 3 hrs of lab a wk.

Geog **299** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **301 Meteorology** (3 cr). Atmospheric processes that produce weather; temperature; moisture, clouds, and precipitation; synoptic-scale weather; severe storms; weather instrumentation, weather maps, and forecasting; influences of weather on humans and impacts of humans on weather. One 1/2-day field trip. Prereq: Geog 100 or Phys 100 or perm.

Geog **315 Geomorphology** (3 cr). See Geol 335.

Geog **316 Processes in Glacial and Periglacial Environments** (3-6 cr). See Geol J236/J36.

Geog **330 Urban Geography** (3-4 cr). Theory and models of the functions, origin, development, structure, and distribution of cities; land-use classification; geographic aspects of city planning. One hour additional meeting per week or project for fourth credit. One 1-day field trip. Prereq: Geog 200 or perm.

Geog **340 Business Location Decisions** (3 cr). Locational decision making in primary, secondary, and tertiary industries; resulting patterns of industrial location; importance of location and impact of industries on other characteristics of communities as demonstrated by examples from each sector. One 1-day field trip. Prereq: Geog 200 or perm.

Geog **346 Transportation** (3-4 cr). Structure of transportation systems and the role of these in spatial interactions; comparative advantages of air, water, highway, rail, and pipeline transport, and current development in each mode. One hour additional meeting per week or project for fourth credit. One and one-half days of field trips. Prereq: Geog 200 or perm.

Geog **350 Geography of Development** (3-4 cr). Geographic appraisal of resource problems and development potentials of the Third World. One hour additional meeting per week or project for fourth credit. Prereq: Geog 200.

Geog **360 Population Dynamics and Distribution** (3-4 cr). Same as Soc 360. Effects of fertility, mortality, and migration on population size and distribution; demographic trends in U.S. and other societies and how these relate to economic, political, environmental, and other factors. One hour additional meeting per week or project for fourth credit. Prereq: Geog 200 or perm.

Geog **ID362 U.S. and Canada** (3 cr). WSU Hist 314. Regional and systematic geography; emphasis on contemporary problems. Two 1-day field trips.

Geog **364 Idaho and the Pacific Northwest** (3 cr). Regional and systematic geography of the Northwest; emphasis on Idaho and contemporary problems. One 2-day field trip.

Geog **365 Political Geography** (3 cr). Conceptual approach to manifestations of political activity at every organizational level; intro to basic ideas of politics, territory, and geographic environment. Prereq: Geog 200 or perm.

Geog **370 Spatial Analysis** (3 cr). Methodological need for analyses of spatial data; spatial statistics; measurement of aggregation and concentration, description of areal distributions and gradients; regionalization techniques; intro to computer applications for spatial data. Prereq: intro courses in physical science and social science and Stat 251 or equivalent.

Geog **378 Interactive Cartography** (3 cr). Integration of GIS, desktop mapping, and office productivity applications; development of software applications. Two lec, 2 hrs of lab, and 6 hrs of outside work per wk. Prereq: Geog 280 or perm.

Geog **380 Cartography and Graphic Communication** (3 cr). For the map-using professions (e.g., agriculture, engineering, forestry, geosciences, planning). Map design and construction; maps as graphic communication devices, design and drafting processes for map creation and production. Two lec and 6 hrs of lab a wk.

Geog **ID385 GIS Primer** (3 cr). WSU ES/RP 385. Intro to basic concepts and applications of geographic information systems (GIS), lab exercises on PC-based GIS packages. Two lec and 2 hrs of lab a wk. Prereq: basic knowledge of PC-based operating system.

Geog **400** (s) **Seminar** (cr arr). Prereq: perm.

Geog **401 Climatology** (3 cr). Physical basis for climatic processes and patterns; mechanics of global atmospheric circulation; radiation balance and heat budget of the earth; models of weather patterns and climate. Prereq: Geog 100 or Geog 301 or Phys 100 or perm.

Geog **403** (s) **Workshop** (cr arr). Prereq: perm.

Geog **404** (s) **Special Topics** (cr arr). Prereq: perm.

Geog **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Geog **ID420 Land and Resource Regulation** (3 cr). WSU ES/RP 588. Legal aspects of land-use control and resource management; methods of research in law libraries for planners and resource managers not trained as attorneys. Prereq: Geog 200 or perm.

Geog **427 Decision-Making in Resource Management** (3 cr). Theory and applications of evaluation, collaborative spatial decision making, and optimization techniques in planning and management of natural resource systems; focus on operational knowledge of techniques, applicability, and limitations. Prereq: Geog 240, Math 160 or Stat 401 or perm. (Alt/yrs)

Geog **WS444 Environmental Assessment** (3 cr). WSU ES/RP 444.

Geog **470 Computer Mapping** (3 cr). Design, generation, and analysis of thematic and topographic maps using digital mapping software on various microcomputer platforms and output devices; emphasis on cartographic communication and spatial analysis of computer-generated maps. Two lec and 2 hrs of lab a wk. Prereq: Geog 380 or perm.

Geog **ID475 Geographic Information Systems** (3 cr). WSU ES/RP 575. Spatial analysis in raster- and vector-based systems; concepts, techniques, and applications of GIS technology using microcomputer and workstation platforms. Two lec and 2 hrs of lab a wk. Prereq: Geog 385 or perm.

Geog **477 Web Resource Development for Geography** (3 cr). Deployment of GIS content on the Web; geo-spatial data management; client-side vs. server-side; critique public and private sector sites; coding in HTML, Visual Basic; scripting. Two lec, 2 hrs of lab, and 6 hrs of outside work a wk. Prereq: Geog 378 or perm.

Geog **480 Advanced Cartography and Remote Sensing** (3 cr). Problems in compilation, design, and production of complex thematic maps using state-of-the-art techniques and materials; scribing, process photography, computer cartography, remotely sensed imagery, and printing and reproduction methods to produce a printed map. One lec and six hrs of lab a wk; one 2-day field trip. Prereq: Geog 380 or perm.

Geog **483 Remote Sensing/GIS Integration** (3 cr). Ideas and advanced applications on the use of remotely sensed data and its integration with GIS; topics include examination of various types of imagery, preparing that imagery for incorporation into a GIS, and how to transform that imagery so it is compatible with a GIS. Two lec and 1 hr of lab a wk. Prereq: For 472.

Geog **484 Intermediate Digital Image Processing** (3 cr). Applications of remote sensor data for environmental problem solving. Two lec and 2 hrs of lab a wk. Prereq: Geog 483.

Geog **491** (s) **Field Techniques** (1-3 cr, max 6). Acquisition of data in the field, analysis, interpretation, and presentation of results of field investigations. May also be taken in conjunction with other geography courses. Prereq: perm.

Geog **492 Mineral Industry Case Studies** (3 cr). See Min 472.

Geog **497** (s) **Practicum** (1-6 cr, max 6). Practical on-the-job experience in applied geography and cartography; oral and written reports are presented in which the student reviews and constructively criticizes the experience gained. Prereq: perm.

Geog **498** (s) **Internship** (cr arr). Prereq: perm.

Geog **499** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **500 Master's Research and Thesis** (cr arr).

Geog **501** (s) **Seminar** (cr arr). Prereq: perm.

Geog **502** (s) **Directed Study** (cr arr). Prereq: perm.

Geog **503** (s) **Workshop** (cr arr). Prereq: perm.

Geog **504** (s) **Special Topics** (cr arr). Prereq: perm.

Geog **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Geog **516 Advanced Field Glaciology** (6 cr). See Geol 536.

Geog **520 Land and Resource Regulation Seminar** (3-6 cr, max 6). Current legal issues in land use control and mineral resource management. Prereq: Geog 420 or 425 or perm.

Geog **527 Seminar in Resource Geography** (3 cr). Examination of spatial ramifications of resource issues; emphasis on fuel and non-fuel minerals and development of spatial models used in evaluation process.

Geog **WS544 Environmental Assessment** (3 cr). WSU ES/RP 544.

Geog **580 GIS Seminar** (3 cr). Advanced topics in GIS and GIS applications including macro programming, user interface design, and data integration. Prereq: Geog 380 or perm.

Geog **582 Modeling and Simulation with Geographic Information Systems** (3 cr). Principles and techniques of modeling and simulation of spatial and temporal processes; map algebra modeling language; model design and implementation using map algebra and a GIS macro programming language in UNIX environment. Two lec and 2 hrs of lab a wk. Prereq: Geog 475 and 580. (Alt/yrs)

Geog **591 History and Philosophy of Geography** (3 cr). Evolution of geography as a discipline, focusing on post-scientific revolution developments and identification of major themes in contemporary geographic thought.

Geog **597** (s) **Practicum** (cr arr). Prereq: perm.

Geog **598** (s) **Internship** (cr arr). Practical, on-the-job experience with governmental agencies or commercial establishments; oral and written reports are presented in which the student reviews and constructively criticizes the experience gained; salary may be received for services performed. Prereq: perm.

Geog **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Geog **600 Doctoral Research and Dissertation** (cr arr).

Geological Engineering

Patrick R. Taylor, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).

GeoE **203** (s) **Workshop** (cr arr). Prereq: perm.

GeoE **204** (s) **Special Topics** (cr arr). Prereq: perm.

GeoE **210 Introduction to Geological Engineering** (1 cr). Introduction to geological engineering testing, analysis, and design methods; data interpretation and problem solving using computers. One lec and one recitation a wk. Prereq: Geol 101 or 111, Math 170.

GeoE **299** (s) **Directed Study** (cr arr). Prereq: perm.

GeoE **309 Groundwater** (3 cr). See Geol 309.

GeoE **312 Geological Engineering Materials** (3 cr). Selected studies in mineralogy and petrology; engineering properties of soil, rock, and groundwater; introduction to site investigation and sampling. Three lec and one recitation a wk; one 1-day field trip. Prereq: Geol 101 or 111, Engr 210.

GeoE **360 Geologic Hazards** (3 cr). See Geol 360.

GeoE **400** (s) **Seminar** (cr arr). Prereq: perm.

GeoE **401 Field Geology and Report Writing** (6 cr). See Geol 401.

GeoE **403** (s) **Workshop** (cr arr). Prereq: perm.

GeoE **404** (s) **Special Topics** (cr arr). Prereq: perm.

GeoE **407 Rock Mechanics** (3 cr). See Min 401.

GeoE **410 Techniques of Groundwater Study** (3 cr). Same as Geol 410. Collection and analysis of field data for reconnaissance groundwater studies. Two weekend field trips. Prereq or coreq: Geol/GeoE 309.

GeoE **420 Erosion and Sediment Control** (3 cr). Same as Geol 420. Erosion and sediment control principles and practices, with emphasis on construction activities and compliance with regulatory guidelines. One 1-day field trip. Prereq: perm.

GeoE **421 Engineering Geophysics** (3 cr). See Min 421.

GeoE **ID428 Geostatistics** (3 cr). Same as Stat and Min 428. WSU Geol and Stat 428. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation, variograms, kriging, and simulation. Prereq: Stat 301 or equivalent.

GeoE **ID&WS435 Geological Engineering Principles** (3 cr). WSU Geol 426. Use of geological information in engineering interpretation, analysis, and design; engineering stability analyses for excavations and slopes. Prereq: Phys 211, Engr 210.

GeoE **436 Geological Engineering Design** (3 cr). Geological engineering design methods and projects, including artificial reinforcement techniques; individual and teamwork approaches to formulating and solving geological engineering problems. One 1-day field trip. Prereq: GeoE 435.

GeoE **ID-J442/ID-J542 Geomechanics** (3 cr). Same as Geol J442/J542. Concepts of fracture mechanics as applied to the origin and evolution of faults, joints, dikes, sills, veins, and solution surfaces; interpretation of features on geologic maps, in well bores, aquifers, reservoirs, and around excavations; introduction to numerical methods applied to elasticity problems. Graduate student enrollment requires a term project. Field trip. Prereq: Phys 111 or 211, Math 175.

GeoE **ID444 Earthquakes and Seismic Hazards** (3 cr). WSU Geol 444. Same as Geol 444. The geology of earthquakes from the mechanics of failure to seismic waves to seismicity associated with all fault types in a variety of tectonic settings; methods of identifying paleo-earthquakes in the geologic record and assessing seismic risk in active fault environments. One 2-day field trip. Prereq: Geol 101 or 111, Phys 111 or 211.

GeoE **J463/J563 Hydrogeology** (3 cr). See Hydr J463/J563.

GeoE **J468/J568 Aquifer Test Design and Analysis** (3 cr). See Hydr J468/J568.

GeoE **475 Mineral Deposits** (4 cr). Same as Geol 475. Occurrence, classification, and origin of metallic and nonmetallic economic mineral deposits. Three lec and one 3-hr lab a wk; one 3-day field trip. Prereq: Geol 249, 345; recommended preparation: Geol 423.

GeoE **476 Exploration Methods** (3 cr). Same as Geol 476. Design of geological surveys and mineral exploration programs; integration and evaluation of geological, geochemical, and geophysical exploration techniques. Prereq or coreq: GeoE 475.

GeoE **ID-J480/ID-J580 Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

GeoE **485 Geochemical Exploration** (3 cr). See Geol 485.

GeoE **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

GeoE **499** (s) **Directed Study** (cr arr). Prereq: perm.

GeoE **500 Master's Research and Thesis** (cr arr).

GeoE **501** (s) **Seminar** (cr arr). Prereq: perm.

GeoE **502** (s) **Directed Study** (cr arr). Prereq: perm.

GeoE **503** (s) **Workshop** (cr arr). Prereq: perm.

GeoE **507 Rock Mechanics II** (3 cr). See Min 504.

GeoE **528 Advanced Geostatistics** (3 cr). Same as Min 528. Advanced geostatistical methods with emphasis on multivariate kriging, conditional kriging, and spatial simulations. Prereq: GeoE 428.

GeoE **ID535 Seepage and Earth Dams** (3 cr). Same as CE 563. WSU C E 507. Principles of earth-dam design, failures, practical considerations in construction; principles governing the flow of water through soils. Prereq: perm.

GeoE **ID536 Slope Stability Analysis** (3 cr). Theory of stability analysis of slopes, landslides, and embankments for soil and rock masses; problem solutions using hand calculations and the latest computer codes; problems explore practical applications in the geotechnical engineering field.

GeoE **540 Stochastic Geotechnology** (3 cr). Probabilistic methods applied to geotechnology with emphasis on engineering, environmental geology, and hydrogeology. Prereq: GeoE 428 or Stat 451.

GeoE **ID542 Geomechanics** (3 cr). See GeoE J442/J542.

GeoE **ID546 Fault Mechanics** (3 cr). See Geol 546.

GeoE **563 Hydrogeology** (3 cr). See Hydr J463/J563.

GeoE **568 Aquifer Test Design and Analysis** (3 cr). See Hydr J468/J568.

GeoE **580 Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

GeoE **589 Water Resources Seminar** (1 cr). See Intr 589.

GeoE **597** (s) **Practicum** (cr arr). Prereq: perm.

GeoE **598** (s) **Internship** (cr arr). Prereq: perm.

GeoE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Geology

John S. Oldow, Head, Dept. of Geological Sciences (320 Mines Bldg. 83844-3022; phone 208/885-6192).

Geol **101 Physical Geology** (4 cr). May be used as core credit in J-3-b. The earth, its composition, structure, and natural processes. Three lec and 2 hrs of lab a wk; one 1-day field trip.

Geol **102 Historical Geology** (4 cr). May be used as core credit in J-3-b. Evolution of the physical earth, plants, and animals; techniques used in interpretation of geologic history. Three lec and 2 hrs of lab a wk; one 1-day field trip.

Geol **ID&WS103 The Solar System** (3 cr). WSU Geol 103. Overview of results of modern planetary exploration; geologic processes and environments on planets and moons in our solar system; introductory course in planetary science for prospective space scientists, K-12 teachers, and the general public. One 1-day field trip.

Geol **111 Physical Geology for Science Majors** (4 cr). Introductory course in earth science for geology and other science majors. Three lec and one 2-hr lab a wk; two 1-day field trips.

Geol **150 Oceanography** (3 cr). Study of features of the world's oceans, their floors, and their margins. One 5-day field trip.

Geol **203** (s) **Workshop** (cr arr). Prereq: perm.

Geol **204** (s) **Special Topics** (cr arr). Prereq: perm.

Geol **212 Principles of Paleontology** (4 cr). Studies of morphology, classification of fossil groups, and utility of fossils in interpreting depositional environments and ages of sedimentary rocks. Three lec and one 2-hr lab a wk; one 1- to 2-day field trip. Prereq: Geol 102.

Geol **J236/J336 Processes in Glacial and Periglacial Environments** (3-6 cr). Same as Geog 316. Quantitative treatment using examples from regions of existing glaciers and permafrost. Two lec and one 3-hr lab a wk or (for 6 cr) 6-wk intensive field session in Alaska and Canada.

Geol **249 Mineralogy and Optical Mineralogy** (4 cr). Principles of crystallography, crystal chemistry, and crystal structure; mineral identification; principles of optical mineralogy and use of the petrographic microscope. Three lec and one 2-hr lab a wk; two 1-day field trips. Prereq: Geol 111 or Geol 101, and Chem 111.

Geol **260 Survey of Minerals** (2 cr). Not open to geology majors. Survey of classification, crystallography, and uses of minerals. One lec and one 2-hr lab a wk; one 1-day field trip.

Geol **261 Lithology** (2 cr). Survey of classification, uses, and description of rocks. One lec and one 2-hr lab a wk; two 1-day field trips. Prereq: Geol 101 or 111.

Geol **299** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **301 Computer Geology** (2 cr). Computer applications in geology; use of BASIC programs, computer graphics, spreadsheets, and data bases to help solve geological problems. One lec and one 2-hr lab a wk. Prereq: perm.

Geol **309 Groundwater** (3 cr). Same as GeoE 309. Occurrence, movement, and properties of subsurface water; intro to ground-water geology and hydrology. Prereq: Geol 101 or 111, and Math 130 or 143.

Geol **323 Geology of the Pacific Northwest** (3 cr). Description and development of the distribution of rocks and mineral deposits in the Pacific Northwest. One 2-day field trip. Prereq: Geol 101 or Geog 100.

Geol **324 Principles of Stratigraphy and Sedimentation** (3-4 cr). Description and identification of sedimentary rocks; organization and correlation of layered rocks in all scales, including factors controlling their distribution; cycles in sedimentation and stratigraphy; sequence stratigraphy and basin dynamics. Geology majors must enroll for 4 credits. Two lec and two 2-hr labs a wk; one 4-day field trip.

Geol **326 Igneous and Metamorphic Petrology** (4 cr). Petrology plus megascopic and microscopic petrography of igneous and metamorphic rocks. Two lec and two 2-hr labs a wk; two 1-day or one 2-day field trips. Prereq: Geol 249.

Geol **335 Geomorphology** (3 cr). Same as Geog 315. Classification, recognition, origin, and significance of land forms; land form analysis in interpretation of geologic structure and history. One 2-day field trip. Prereq: Geol 101 or 102 or 111 or Geog 100 or perm.

Geol **336 Processes in Glacial and Periglacial Environments** (3-6 cr). See Geol J236/J336.

Geol **345 Structural Geology** (3-4 cr). Deformed rocks; mechanics of failure, recognition, description, classification, and genesis of folded and fractured rocks. Geology majors must enroll for 4 credits. Two lec and one 2-hr lab a wk; one 2-day field trip (geology majors must take five 1-day field trips). Prereq: one semester high-school trigonometry or Math 144, Geol 101 or 111, Phys 111 or 211.

Geol **360 Geologic Hazards** (3 cr). Same as GeoE 360. Survey of natural geologic hazards, their controlling factors, recognition of hazard potential; emphasis on flash floods, earthquakes, landslides, volcanic hazards, subsidence. Three 1-day field trips. Prereq: Geol 101 or 111.

Geol **361 Geology and the Environment** (3 cr). Environmental consequences of development of geologic resources; geochemistry of pollution due to geologic resource use; geology and geochemistry of waste disposal sites. Two 1-day field trips. Prereq: Geol 101 or 111.

Geol **375 Geology of National Parks** (2 cr). Primarily for non-geology majors who want to acquire a better knowledge of geologic concepts and processes through study of geology of national parks. One 6-day field trip. Pereq: Geol 101 or 102 or 111 or Geog 100.

Geol **400** (s) **Seminar** (cr arr). Prereq: perm.

Geol **ID&WS401 Field Geology and Report Writing** (6 cr). Same as GeoE 401. WSU Geol 308. Field problems and methods; use of instruments; interpretation of field data; preparation of reports based on field observations and interpretations. Three field trips. Accident and health insurance reqd. Prereq: Geol 345; Geol 261 or 324 and 326.

Geol **405 Earth Sciences** (3 cr). Integration of, and current issues in, the earth sciences (astronomy, geology, meteorology, oceanography) as applied to earth science education. Three lec and one 2-hr lab a wk; two field trips. Prereq: Geog 100 and Geol 101 or 111; recommended: Geog 401, Phys 103-104.

Geol **408 Field Methods in the Earth Sciences** (3 cr). Observation and collection of data in the field and using the data for practical application of the earth sciences; course may be accelerated. Three lec and one 2-hr lab a wk; three field trips. Prereq: Geol 101 or 111 and 335.

Geol **410 Techniques of Groundwater Study** (3 cr). See GeoE 410.

Geol **ID-J415/ID-J515 Paleoecology** (3 cr). WSU Geol 515. Ecological dynamics as applied to the paleontologic record; preservation constraints; animal-sediment interactions; organisms' role in the relative time scale. Different term paper reqd for grad cr. Two lec and one seminar-style meeting a wk; one 5-day field trip to Oregon Coast.

Geol **J416/J516 Advanced Field Methods in Geosciences** (3 cr). Application of field techniques to the recognition and solution of problems of applied and research interest; design and implementation of integrated geological, geochemical, and geophysical programs. For 500-level credit, an additional independent project is required that demonstrates the student's ability to design and carry out a geologic/geochemical/geophysical survey. Accident and health insurance required. Three week field trip. Prereq: Geol 401 or perm.

Geol **417 Advanced Paleontology** (3 cr). Fossil assemblage analyses and report writing; marine faunal assemblage 1st half semester; nonmarine floral assemblage 2nd half semester. Three 2-hr labs a wk; one 1-day field trip. Prereq: Geol 212 or perm.

Geol **J419/J519 A World History of Mining, Metals, and Materials** (3 cr). Same as Met and Min J419/J519. A survey of the history of mining and mineral/materials development since humans evolved; modern technologies, including fossil fuels and atomic energy, will be added to the classic time line through the stone, copper, bronze, and iron ages; major technological developments tied to period historical events; will use the PBS series "Out of the Fiery Furnace" as a text and video supplement, in addition to a number of other videos and media highlighting technological advances and period histories. Additional projects/assignments reqd for grad cr.

Geol **420 Erosion and Sediment Control** (3 cr). See GeoE 420.

Geol **423 Principles of Geochemistry** (3 cr). Physiochemical principles applied to geologic processes; phase equilibria in rock systems. Two lec and one 2-hr lab a wk. Prereq: Geol 101 or 111, and Chem 111.

Geol **430 Topics in Geomorphology/Geologic Hazards** (3 cr). Select advanced topics and case histories of natural geologic hazards and geomorphic processes and their relation to humans. One lec and 4 hrs of lab a wk; three 1-day field trips. Prereq: Geol 360 and/or 335. (Alt/yrs)

Geol **J432/ID-J532 Geologic Development of North America** (3 cr). WSU Geol 529. Tectonic, magmatic, and sedimentary sequence studies of North American continent through time; concepts of metal and petroleum enrichment related to time and geological processes. Additional questions on two exams and written report of field trip reqd for grad cr. One 7-day field trip.

Geol **ID-J442/ID-J542 Geomechanics** (3 cr). See GeoE J442/J542.

Geol **ID444 Earthquakes and Seismic Hazards** (3 cr). See GeoE 444.

Geol **ID&WS-J448/ID&WS-J548 Tectonics** (3 cr). WSU Geol 540. Fundamentals of global plate tectonics, evolution of ocean basins, and the development of continental orogenic belts; focus on theoretical aspects of global tectonics, the salient physical constraints leading to the paradigm, and practical application of the model to regional geological problems. Graduate credit requires additional work including independent research, presentation of the research results in a class presentation, writing a research paper, and answering an additional question in examinations. Two lec and 2 hrs of lab a wk; one or two 1- to 2-day field trips.

Geol **J455/J555 Thermochemistry of Geological Processes** (3 cr). Thermodynamic principles applied to geological problems; specific topics include real gases at high P and T, estimation and measurement of thermodynamic data, solid solution modelling, geobarometry, geothermometry, thermodynamics of magmas. Additional projects/assignments reqd for grad cr. Prereq: Chem 302 or perm. (Alt/yrs)

Geol **J456/J556 Geological Reaction Rates and Diffusion** (3 cr). Chemical kinetics applied to geological sciences; diffusion in crystals, melts and fluids; crystal growth and nucleation; geospeedometry; dissolution and precipitation kinetics; weathering rates; crystal defects. Additional projects/assignments reqd for grad cr. Prereq: Chem 302 and Geol J455/J555, or perm. (Alt/yrs)

Geol **J457/ID-J557 High-Temperature Aqueous Geochemistry I** (3 cr). WSU Geol 557. Application of solution chemistry to hydrothermal solutions; Eh-pH, log f(0_2) - pH, activity - activity diagrams; estimation techniques; water structure; metal complexation; solubility, transport and deposition; equilibrium speciation; geothermal fields; experimental methods; activity coefficients. Additional projects/assignments reqd for grad cr. Two lec and three hrs of lab a wk; one 4-day field trip. Prereq: Chem 302 and Geol J455/J555 or perm. (Alt/yrs)

Geol **J458/ID-J558 High-Temperature Aqueous Geochemistry II** (3 cr). WSU Geol 558. Expands on topics covered in Geol J457/J557 through seminar format. Selected readings from primary literature followed by presentations and discussions in class. Additional projects/assignments reqd for grad cr. Prereq: Chem 302, Geol J455/J555 and J457/J557, or perm. (Alt/yrs)

Geol **J467/ID-J567 Volcanology** (3 cr). WSU Geol 567. Eruption mechanisms, volcanic processes and landforms, and volcanic deposits. Additional projects/assignments reqd for grad cr. Two lec and one 2-hr lab a wk; seven days of field trips.

Geol **472 Mineral Industry Case Studies** (3 cr). See Min 472.

Geol **475 Mineral Deposits** (4 cr). See GeoE 475.

Geol **476 Exploration Methods** (3 cr). See GeoE 476.

Geol **J478/J578 Low Temperature Aqueous Geochemistry** (3 cr). Basic principles of aqueous geochemistry as applied to low temperature waters such as groundwaters, and ocean, lake, and river waters; thermodynamics, kinetics, aqueous speciation, solubility phenomena, adsorption phenomena, calculation and interpretation of Eh-pH diagrams, organic geochemistry of waters, acid mine drainage; accompanying lab will stress familiarity with analytical techniques including those that can be adapted to field use. Two lec and 3 hrs of lab a wk; one 2-day field trip. (Alt/yrs)

Geol **485 Geochemical Exploration** (3 cr). Same as GeoE 485. Principles of geochemical techniques in prospecting for mineral deposits; design, execution, and interpretation of geochemical surveys. Two lec and one 3-hr lab a wk; two 1-day field trips. Prereq: Geol 423, Chem 113.

Geol **J487/J587 Instrumental Techniques in Geochemistry** (3 cr). Modern instrumentation for geochemical analyses including: ion chromatography, gas chromatography, FTIR spectroscopy, ICP-AES, ICP-MS, atomic absorption, UV-visible absorption spectrophotometry, geological sampling preparation. For graduate credit, students must carry out a term project involving the design, testing, and use of analytical protocol using one or more of the instruments covered in class; this project will be reported as a term paper worth a significant proportion of the grade and must reflect an in-depth understanding of the subject material. Two lec and one 3-hr lab a wk. Prereq: perm. (Alt/yrs)

Geol **J488/ID-J588 Isotope Geology** (4 cr). WSU Geol 588. Geologically useful radioactive isotopes; geochronology and isotopes as tracers. Cr earned in Geol 588 by completion of term project. Three lec and one 2-hr lab a wk. Prereq: perm. (Alt/yrs)

Geol **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Geol **498 Senior Thesis** (1-4 cr, max 4). Completion of original research and report. If taken over two semesters, first semester is gaded IP until completion of second semester Prereq: senior status and perm.

Geol **499** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **500 Master's Research and Thesis** (cr arr).

Geol **501** (s) **Seminar** (cr arr). Prereq: perm.

Geol **502** (s) **Directed Study** (cr arr). Prereq: perm.

Geol **503** (s) **Workshop** (cr arr). Prereq: perm.

Geol **WS511 Advanced Topics in Paleontology** (3 cr). WSU Geol 511. (Alt/yrs)

Geol **ID515 Paleoecology** (3 cr). See Geol J415/J515.

Geol **516 Advanced Field Methods in Geosciences** (3 cr). See Geol J416/J516.

Geol **519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Geol **WS520 Advanced Topics in Sedimentary Rocks** (3 cr). WSU Geol 520. Prereq: Geol 324. (Alt/yrs)

Geol **ID524 Hydrostratigraphy** (3 cr). Processes controlling the three-dimensional distribution of hydrogeologic parameters; focus on siliciclastic deposits. (Alt/yrs)

Geol **525 Stratigraphic Paleobotany** (3 cr). Fossil floras and floral successions, taxonomic problems; geologic ranges and past distributions of plant taxa; paleoecological interpretation; methods and correlation and dating by fossil plants. One 1-day and one 2-day field trips. (Alt/yrs)

Geol **ID526 Petrology of Carbonate Rocks** (3 cr). WSU Geol 528. Origin, classification, distribution, depositional environments, and diagenesis of modern and ancient carbonates; emphasis on petrographic analysis. Two lec and one 3-hr lab a wk; one 3-day field trip.

Geol **ID527 Sedimentary Petrography** (3 cr). WSU Geol 527. Description and classification of sedimentary rocks in thin sections and hand specimens. One lec and two 2-hr labs a wk; one 3-day field trip.

Geol **WS528 Clastic Depositional Systems** (3 cr). WSU Geol 521. (Alt/yrs)

Geol **WS529 Carbonate Depositional Systems** (3 cr). WSU Geol 525. (Alt/yrs)

Geol **ID530 Fluvial Systems** (3 cr). Investigation of the relationship between geomorphologic change and the long-term sedimentary record; factors controlling preservation potential of fluvial deposits. (Alt/yrs)

Geol **ID532 Geologic Development of North America** (3 cr). See Geol J432/ID-J532.

Geol **536 Advanced Field Glaciology** (6 cr). Same as Geog 516. Advanced quantitative treatment of glaciological problems carried out on selected glaciers of the Juneau Icefield, Alaska, or an alternative area in the Rocky Mountains or Cascades. (Intensive 7-wk summer field session)

Geol **WS541 Structural Analysis** (3 cr). WSU Geol 541.

Geol **ID542 Geomechanics** (3 cr). See GeoE J442/J542.

Geol **ID546 Fault Mechanics** (3 cr). Same as GeoE 546. Examination of fundamental concepts of fault mechanics, including brittle failure, rock friction, fluid pressure effects, and variable rheological behaviors; examination of internal fault architectures to distinguish fault zone styles; stress, strain, and displacement fields addressed from a theoretical perspective and the application of geodetic measurement techniques and secondary structure analyses; emphasis on interpretation of fault slip distributions and relationship to rock properties, fault shape, and mechanical interaction in echelon fault systems; such insights placed in context of 3-D fault systems geometric evolution as well as earthquake behavior and seismic hazard recognition. One weekend field trip. Prereq: Geol 345.

Geol **WS548 Tectonics** (3 cr). See Geol J448/J548.

Geol **WS550 Advanced Mineralogy** (3 cr). WSU Geol 550. (Alt/yrs)

Geol **WS551 Ore Microscopy and Fluid Inclusion Analysis** (3 cr). WSU Geol 551. (Alt/yrs)

Geol **WS552 X-ray Analysis in Geology** (3 cr). WSU Geol 552.

Geol **553 Chemical Petrology** (3 cr). Use of major and trace element and geochemistry in elucidating the genesis and evolution of igneous rocks, especially in relation to their tectonic setting.

Geol **ID554 Physical Petrology** (3 cr). WSU Geol 554. Applications of continuum mechanics and fluid dynamics to generation, rise, storage, and eruption of magmas.

Geol **555 Thermochemistry of Geological Processes** (3 cr). See Geol J455/J555.

Geol **556 Geological Reaction Rates and Diffusion** (3 cr). See Geol J456/J556.

Geol **ID557 High-Temperature Aqueous Geochemistry I** (3 cr). See Geol J457/J557.

Geol **ID558 High-Temperature Aqueous Geochemistry II** (3 cr). See Geol J458/J558.

Geol **WS560 Advanced Igneous Petrology** (3 cr). WSU Geol 560.

Geol **ID567 Volcanology** (3 cr). See Geol J467/J567.

Geol **WS571 Geochemistry of Hydrothermal Ore Deposits** (3 cr). WSU Geol 571.

Geol **WS573** (s) **Advanced Topics in Economic Geology** (2 cr). WSU Geol 573.

Geol **ID575 Advanced Mineral Deposits I** (3 cr). WSU Geol 561. Ore mineralogy and fabric; sulfide phase equilibria.

Geol **ID577 Advanced Mineral Deposits II** (3 cr). WSU Geol 561. Modern concepts of the origin and geochemistry of metallic mineral deposits. Two lec and one 3-hr lab a wk; one 3-day field trip.

Geol **578 Low Temperature Aqueous Geochemistry** (3 cr). See Geol J478/J578.

Geol **WS581 Geochemical Phase Diagrams** (3 cr). WSU Geol 581.

Geol **587 Instrumental Techniques in Geochemistry** (3 cr). See Geol J487/J587.

Geol **ID588 Isotope Geology** (4 cr). See Geol J488/J588.

Geol **589 Water Resources Seminar** (1 cr). See Intr 589.

Geol **WS592 Advanced Topics in Structural Geology** (1-4 cr, max 6). WSU Geol 592.

Geol **ID593** (s) **Advanced Topics in Geomechanics** (1-4 cr, max arr). Advanced treatment of current topics in geomechanics and related disciplines such as structural geology, hydrogeology, engineering geology, and petroleum engineering.

Geol **597** (s) **Practicum** (cr arr). Prereq: perm.

Geol **598** (s) **Internship** (cr arr). Prereq: perm.

Geol **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Geol **600 Doctoral Research and Dissertation** (cr arr).

Geophysics

John S. Oldow, Head, Department of Geological Sciences (320 Mines Bldg. 83844-3022; phone 208/885-6192).

Geop **J420/J520 Exploration Geophysics** (3 cr). Design and interpretation of geophysical surveys for exploration of metallic and nonmetallic mineral deposits; use of geophysics to solve exploration problems. Additional projects/assignments reqd for grad cr. Prereq: perm.

Geop **421 Engineering Geophysics** (3 cr). See Min 421.

Geop **422 Principles of General Geophysics** (3 cr). Same as Min 422. Outline of geophysical methods used to investigate earth's interior. One 1-day field trip. Prereq: perm.

Geop **J423/J523 Seismic Stratigraphy** (3 cr). Intro to seismic exploration with emphasis on stratigraphic interpretation; solution of geologic problems using seismic techniques; design of seismic surveys. Additional projects/assignments reqd for grad cr. Prereq: perm.

Geop **499** (s) **Directed Study** (cr arr). Prereq: perm.

Geop **500 Master's Research and Thesis** (cr arr).

Geop **501** (s) **Seminar** (cr arr). Prereq: perm.

Geop **502** (s) **Directed Study** (cr arr). Prereq: perm.

Geop **520 Exploration Geophysics** (3 cr). See Geop J420/J520.

Geop **521 Mining Geophysics** (3 cr). See Min 520.

Geop **523 Seismic Stratigraphy** (3 cr). See Geop J423/J523.

Health and Safety

Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).

H&S **150 Wellness Lifestyles** (3 cr). Health concepts and strategies that affect one's wellness; emphasis on personal responsibility and life-style choices.

H&S **200** (s) **Seminar** (cr arr). Prereq: perm.

H&S **203** (s) **Workshop** (cr arr). Prereq: perm.

H&S **204** (s) **Special Topics** (cr arr). Prereq: perm.

H&S **245 Introduction to Athletic Injuries** (3 cr). Special fee course. Athletic training; recognition, evaluation, general care of athletic injuries; adhesive strapping. Two lec and one lab a wk. Prereq or coreq: Zool 120.

H&S **288 First Aid: Emergency Response** (2 cr). Emergency care of injuries resulting from accidents or illness; administration of oxygen and blood pressure measurements. Qualified students will be awarded two certificates: American Red Cross Emergency Response and American Red Cross CPR for the Professional Rescuer. Certification/lab fee reqd. Two lec and 1 hr of lab a wk.

H&S **289 Drugs in Society** (2 cr). Legal implications, values, and physical, social, and emotional factors involved in the use and abuse of drugs in society.

H&S **299** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **311 Acquaintance Rape** (2-3 cr). Overview of acquaintance sexual assault and rape, related research and statistics, impact on victims, socialization process of gender role stereotyping, exploration of myths and misconceptions, psychology of perpetrators, legal definitions, and avoidance strategies. Students give a set number of presentations to living groups.

H&S **316 School and Community Health Services** (2 cr). Health services as they apply to the school, community health environment, and culture variables, with emphasis on public and volunteer organizations. Prereq: H&S 150.

H&S **323 Health Education Methods and Administration** (3 cr). Curriculum design, organization, strategies, and resource materials for teaching health in a multi-culture setting. Prereq: H&S 150.

H&S **ID349 Advanced Athletic Injuries** (3 cr). WSU Ath T 349. Special fee course. Etiologic symptoms of sports-related injuries; diagnostic emphasis given to specific injuries of the extremities. Two lec and one lab a wk. Prereq: H&S 245 or perm.

H&S **350 Stress Management and Mental Health** (2 cr). Application of behavioral stress management techniques that have the potential to relieve mental and physical stress; emphasis on development of skills related to mental and physical health.

H&S **355 Accident Control, Prevention, and Human Ecology** (2 cr). The study of accidents, accident prevention, and injury control in variety of settings within society; emphasis on human resources impact. (Alt/yrs)

H&S **WS390 Athletic Training High School Practicum** (1-4 cr, max 4). WSU Ath T 390.

H&S **WS391 Athletic Training Sports Medicine Practicum** (1-4 cr, max 4). WSU Ath T 391.

H&S **400** (s) **Seminar** (cr arr). Prereq: perm.

H&S **403** (s) **Workshop** (cr arr). Prereq: perm.

H&S **404** (s) **Special Topics** (cr arr). Prereq: perm.

H&S **410 Athletic Rehabilitation and Administration** (2 cr). Rehabilitation techniques for reconditioning following specific injuries and surgeries; administrative topics include facilities, budgeting, and legalities.

H&S **431 Practicum: Student Teaching** (7 or 14 cr). Supervised student teaching at the intermediate and/or secondary levels (grades 6 through 12). Double majors select the 7-cr option; all other students select the 14-cr option. Credits earned in this course may not be applied to total credits needed for the school and community health education major. Graded P/F. Prereq: admission to teacher education, H&S 323, ED 312 and 314, cumulative GPA of 2.5, and perm of dept. (Submit application to director of clinical experiences in the College of Education by December 1 of the school year before enrolling.)

H&S **J436/J536 Health and Wellness Promotion** (3 cr). Theoretical and programmatic aspects of health promotion/wellness programs in workplace and community; investigation of marketing, mass media, and health behavior change approaches; review of research on smoking cessation, weight control, nutrition, fitness, hypertension, and stress management programs. Additional projects reqd for grad cr. Prereq: H&S 150.

H&S **440 Driver Education I** (3 cr). Methods, organization, and administrative techniques; development of habits, attitudes, knowledge, and skills. Prereq: valid driver's license and perm.

H&S **449 Driver Education II** (3 cr). Special fee course. Continuation of H&S 440. Advanced preparation in principles and practice of driver and traffic safety education for teachers, supervisors, and administrators; emphasis on new and broader teaching competencies in traffic safety. Lab work and safety projects reqd. In addition to lec, 6-10 hrs of practicum reqd during semester. Prereq: H&S 440, valid driver's license, satisfactory driving record, and perm.

H&S **J450/J550 Contemporary Issues in Health** (2 cr). Current trends and issues affecting individual's and society's decisions regarding personal and environmental health. Term project reqd for grad cr.

H&S **WS465 Medical Aspects of Athletic Injuries** (1 cr). WSU Ath T 465.

H&S **WS466 Athletic Training Evaluation** (3 cr). WSU Ath T 466.

H&S **WS467 Athletic Training Rehabilitation** (3 cr). WSU Ath T 467.

H&S **WS468 Athletic Training Modalities** (3 cr). WSU Ath T 468.

H&S **WS469 Athletic Training Organization and Administration** (3 cr). WSU Ath T 469.

H&S **495** (s) **Practicum in Tutoring** (1 cr, max arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

H&S **498 Internship in Health/Safety** (cr arr). Supervised field work. Graded P/F. Prereq: Rec 445 and sr standing.

H&S **499** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **501** (s) **Seminar** (cr arr). Prereq: perm.

H&S **502** (s) **Directed Study** (cr arr). Prereq: perm.

H&S **503** (s) **Workshop** (cr arr). Prereq: perm.

H&S **504** (s) **Special Topics** (cr arr). Prereq: perm.

H&S **505** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

H&S **536 Health and Wellness Promotion** (3 cr). See H&S J436/J536.

H&S **550 Contemporary Issues in Health** (2 cr). See H&S J450/J550.

History

Richard B. Spence, Chair, Dept. of History (315 Admin. Bldg. 83844-3175; phone 208/885-6253).

PREREQUISITE: Two-semester courses in this field may be taken in either order. Students may enroll in second-semester courses without having had the first. Ordinarily six lower-division credits in history are advised for registration in upper-division courses.

Note: In jointly numbered courses, additional projects/assignments are required for graduate credit.

Hist **101-102 History of Civilization** (3 cr) (C). May be used as core credit in J-3-e. Contributions to the modern world. Hist 101: to 1650. Hist 102: 1650 to present.

Hist **111-112 Introduction to U.S. History** (3 cr) (C). Political, diplomatic, economic, social, and cultural history; earliest times to the present. Hist 111: to 1877. Hist 112: 1877 to present.

Hist **180 Introduction to East Asian History** (3 cr). Survey of traditional and modern Chinese and Japanese history.

Hist **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Hist **210 Introduction to Modern Latin American History** (3 cr). Survey of economic, political, social, and cultural developments in selected Latin American countries, each of which represents a large region, from independence to the present; emphasis on cultural uniqueness, economic development, pressures for social change, and mass political movements.

Hist **290 The Historian's Craft** (3 cr). Introduction to the discipline of history, basic skills for course work and research, and major schools of historical writing.

Hist **313 Red, White, and Black: The Peopling of Early North America** (3 cr). Survey; Native American, Euroamerican, and Afro-American heritage in North America, 1400-1790.

Hist **315 Modern African-American Culture** (3 cr). An overview of African American history in the U.S. from the late 19th century to the present; comparisons with the experience of African Americans in other parts of the Americas; study of important personalities and historical forces that have influenced African Americans and the societies in which they live.

Hist **331 The Age of African Empires** (3 cr). Survey of the history of Africa south of the Sahara to 1800.

Hist **357 Women in Pre-Modern European History** (3 cr). Survey of historical experience of women from the Greeks through the 17th century.

Hist **371-372 History of England** (3 cr) (C). Political, social, economic, and religious development of the British Isles. Hist 371: to 1688. Hist 372: 1688 to present.

Hist **J401/J501** (s) **Seminar** (cr arr). Research papers in U.S., Latin American, ancient, English, or European history. Prereq: perm of dept.

Hist **404** (s) **Special Topics** (cr arr). Prereq: perm.

Hist **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Hist **J407/J507** (s) **Colloquium in European History** (cr arr). Reading and analyzing historical literature in European history.

Hist **J408/J508** (s) **Colloquium in Latin American History** (cr arr). Reading and analyzing historical literature in Latin American history.

Hist **J409/J509** (s) **Colloquium in American History** (cr arr). Reading and analyzing historical literature in American history.

Hist **J411/J511 Colonial North America, 1492-1763** (3 cr). Native American societies; Spanish, French, and English colonization; international rivalries, 1492-1763.

Hist **J412/J512 Revolutionary North America and Early National Period, 1763-1828** (3 cr). Era of the American War of Independence; Confederation; Early Nationhood, 1763-1828.

Hist **J415/J515 Civil War and Reconstruction, 1828-1877** (3 cr). Sectionalism, westward expansion, slavery, the Civil War and Reconstruction.

Hist **J416/J516 Rise of Modern America, 1877-1900** (3 cr). Industrial and economic development, political reform, populism.

Hist **J417/J517 United States, 1900-1945** (3 cr). Populism, Progressivism, World War I, the Twenties, the Depression, the New Deal, and World War II.

Hist **J418/J518 Recent America, 1945-Present** (3 cr). America since 1945.

Hist **J419/J519 Twentieth-Century American West** (3 cr). History of the 11 Rocky Mountain and Pacific states from 1900 to the present.

Hist **J420/J520 History of Women in American Society** (3 cr). Examination of the roles of women—social, economic, and political—in U.S. history from colonial times to the present.

Hist **422 The American Landscape** (3 cr). Using a regional approach to study the development of North America during the past three centuries, viewing and appreciating history as reflected in the continent's changing landscapes and built environment.

Hist **J423/J523 Idaho and the Pacific Northwest** (3 cr) (C, 423 only). Political, economic, social development; earliest times to the present.

Hist **J424/J524 American Environmental History** (3 cr). History of changing American attitudes and actions toward the environment over three centuries.

Hist **WS-J427/WS-J527 Public History: Theory and Methodology** (3 cr). WSU Hist 427/527.

Hist **J428/J528 History of the American West** (3 cr). Spanish beginnings, Anglo-French expansion, the American occupancy, 1540 to present.

Hist **J429-J430/J529-J530 U.S. Diplomatic History** (3 cr). Hist J429/J529: from independence to world power, 1763-1898. Hist J430/J530: world power through war and the quest for peace, 1898 to present.

Hist **J431/J531 History of Indian-White Relations** (3 cr). Survey 1400 to present; dynamics and themes of Indian history with emphasis on Indian-White relations in the U.S.

Hist **J435/J535 Latin America: The Colonial Era** (3 cr). Indian civilization, European colonization, Spanish Imperial System, wars of independence.

Hist **J438/J538 Modern Mexico** (3 cr). Survey and analysis of political, economic, social, and cultural aspects from independence to present; emphasis on Iberian and Amerindian legacies, economic development, relations with U.S., and social revolution of 1910-1920.

Hist **J439/J539 Modern Latin America** (3 cr). Political, economic, social, and cultural development; search for stability; growth of nationalism.

Hist **J440/J540 Social Revolution in Latin America** (3 cr). Analysis and comparison of 20th-century social revolution in selected Latin American countries: Cuba and two others; emphasis on origins of movements for social change, economic development issues, impact of the revolutions, and relations between new governments and the U.S.

Hist **J441/J541 Comparative Slavery and Emancipation in the Atlantic World** (3 cr). Analysis of the way in which African slavery became the predominant labor force in the Americas.

Hist **J442/J542 The Medieval Church: Europe in the Early and High Middle Ages** (3 cr). Hist 442 same as RelS 442. Evolution of medieval Christian society from reign of Constantine (c. 300) to pontificate of Innocent III (1215), as expressed in monastic and mendicant orders, crusades, 12th-century Renaissance, and heresy.

Hist **J443/J543 The Medieval State: Europe in the High and Late Middle Ages** (3 cr). Analysis of how the vitality of particular medieval princes, of the commercial revolution, and of such movements as development of common law was harnessed in the evolution of medieval government from feudalism to the modern state.

Hist **444 Ancient Greek Civilization** (3 cr). See FLEN 441.

Hist **445 Medieval English Constitutional and Legal History: 1066-1485** (3 cr). The study of the origins and development of English law and the English constitution during the Middle Ages.

Hist **446 Civilization of Ancient Rome** (3 cr). See FLEN 442.

Hist **J447/J547 The Age of the Renaissance and the Reformation** (3 cr). Hist 447 same as RelS 447. Survey of European history and society through changes wrought by the Renaissance, the Explorations, and the Reformation.

Hist **J451/J551 Age of the French Revolution** (3 cr). Nature of the Old Regime; relationship between the Enlightenment and the French Revolution; aims, progress, and consequences of the revolution itself; Europe, 1650-1815.

Hist **J452/J552 19th Century Europe** (3 cr). Nationalism and nation-building; Imperialism and the Great Powers; Capitalism and Socialism; tensions and rivalries leading to WWI.

Hist **J455/J555 20th Century Europe** (3 cr). World Wars, revolutions, and totalitarianism; decline and fall of the European empires; rise of a New Europe.

Hist **J457/J557 History of the Middle East** (3 cr). Survey of the Middle East from the beginning of the Islamic period to the present.

Hist **J458/J558 Military History** (3 cr). Survey of military history from ancient times to present; emphasis on interrelationship of war, society, and technology.

Hist **J466/J566 Eastern Europe Since 1774** (3 cr). Nationality, nation-building, and dissolution; emphasis on Poland, the Habsburg Empire, and the Balkans.

Hist **J467/J567 Russia to 1894** (3 cr). Russia from medieval origins to 1894; development of Tsarist autocracy and serfdom; reaction, reform, and rise of the revolutionary movements.

Hist **J468/J568 Russia and Soviet Union Since 1894** (3 cr). The last years of Tsarism; revolutions of 1905 and 1917; development of the Soviet Union under Lenin, Stalin, and their successors.

Hist **J469/J569 Modern France** (3 cr). French nation from 1815 through the De Gaulle era.

Hist **J470/J570 Germany and Central Europe Since 1815** (3 cr). Development of Germany from pre-Bismarck era to present; parallel developments in the Habsburg monarchy and Austrian Republic.

Hist **J482/J582 Japan, 1600 to Present** (3 cr). Western impact on the political, cultural, and economic fabric of Japanese society.

Hist **J483/J583 Traditional Chinese Civilization** (3 cr). Survey from prehistoric beginnings through 1840s.

Hist **J484/J584 Modern China, 1840s to Present** (3 cr). Last century of Qing dynasty, 1911 Revolution and Republican experiment, Revolution of 1949, and People's Republic of China.

Hist **485 Chinese Social and Cultural History** (3 cr). Survey of Chinese culture and traditions during the first millennium.

Hist **499** (s) **Directed Study** (cr arr). Prereq: perm.

Hist **500 Master's Research and Thesis** (cr arr).

Hist **501** (s) **Seminar** (cr arr). See Hist J401/J501.

Hist **502** (s) **Directed Study** (cr arr). Prereq: perm.

Hist **504** (s) **Special Topics** (cr arr). Prereq: perm.

Hist **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Hist **507** (s) **Colloquium in European History** (cr arr). See Hist J407/J507.

Hist **508** (s) **Colloquium in Latin American History** (cr arr). See Hist J408/J508.

Hist **509** (s) **Colloquium in American History** (cr arr). See Hist J409/J509.

Hist **511 Colonial North America, 1492-1763** (3 cr). See Hist J411/J511.

Hist **512 The American Revolution, 1763-1789** (3 cr). See Hist J412/J512.

Hist **515 Civil War and Reconstruction, 1828-1877** (3 cr). See Hist J415/J515.

Hist **516 Rise of Modern America, 1877-1900** (3 cr). See Hist J416/J516.

Hist **517 United States, 1900-1945** (3 cr). See Hist J417/J517.

Hist **518 Recent America, 1945-Present** (3 cr). See Hist J418/J518.

Hist **519 Twentieth-Century American West** (3 cr). See Hist J419/J519.

Hist **520 History of Women in American Society** (3 cr). See Hist J420/J520.

Hist **523 Idaho and the Pacific Northwest** (3 cr). See Hist J423/J523.

Hist **524 American Environmental History** (3 cr). See Hist J424/J524.

Hist **WS527 Public History** (3 cr). See Hist J427/J527.

Hist **528 History of the American West** (3 cr). See Hist J428/J528.

Hist **529-530 U.S. Diplomatic History** (3 cr). See Hist J429-J430/J529-J530.

Hist **531 History of Indian-White Relations** (3 cr). See Hist J431/J531.

Hist **535 Latin America: The Colonial Era** (3 cr). See Hist J435/J535.

Hist **538 Modern Mexico** (3 cr). See Hist J438/J538.

Hist **539 Modern Latin America** (3 cr). See Hist J439/J539.

Hist **540 Social Revolution in Latin America** (3 cr). See Hist J440/J540.

Hist **541 Comparative Slavery and Emancipation in the Atlantic World** (3 cr). See Hist J441/J541.

Hist **542 The Medieval Church: Europe in the Early and High Middle Ages** (3 cr). See Hist J442/J542.

Hist **543 The Medieval State: Europe in the High and Late Middle Ages** (3 cr). See Hist J543/J543.

Hist **547 The Age of the Renaissance and the Reformation** (3 cr). See Hist J447/J547.

Hist **551 Age of the French Revolution** (3 cr). See Hist J451/J551.

Hist **552 19th Century Europe** (3 cr). See Hist J452/J552.

Hist **555 20th Century Europe** (3 cr). See Hist J455/J555.

Hist **557 History of the Middle East** (3 cr). See Hist J457/J557.

Hist **558 Military History** (3 cr). See Hist J458/J558.

Hist **566 Eastern Europe Since 1774** (3 cr). See Hist J466/J566.

Hist **567 Russia to 1894** (3 cr). See Hist J467/J567.

Hist **568 Russia and Soviet Union Since 1894** (3 cr). See Hist J468/J568.

Hist **569 Modern France** (3 cr). See Hist J469/J569.

Hist **570 Germany and Central Europe Since 1815** (3 cr). See Hist J470/J570.

Hist **582 Japan, 1600 to Present** (3 cr). See Hist J482/J582.

Hist **583 Traditional Chinese Civilization** (3 cr). See Hist J483/J583.

Hist **584 Modern China, 1840s to Present** (3 cr). See Hist J484/J584.

Hist **591-592 Historiography** (3 cr). Nature of history; major historians; ideas in history; philosophy of history; bibliography. Hist 591: U.S. historians. Hist 592: European and British historians.

Hist **597 Practicum: Teaching College History** (1 cr, max 4). Required for graduate students assigned to survey course sections. Does not satisfy 78-cr requirement for doctorate. Graded P/F. Prereq: perm of dept chair.

Hist **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Hist **600 Doctoral Research and Dissertation** (cr arr).

Hydrology

John S. Oldow, Head, Dept. of Geological Sciences (320 Mines Bldg. 83844-3022; phone 208/885-6192).

Hydr **412 Environmental Hydrogeology** (3 cr). Methods of hydrogeologic site characterization for the delineation of environmental problems such as contaminated ground water plumes, and ground water dewatering for landslide remediation. Prereq: Geol 309 or Hydr 463.

Hydr **J463/J563 Hydrogeology** (3 cr). Same as GeoE J463/J563. Equations governing single fluid flow through saturated porous media under various geologic conditions; models, general relations between flow systems and water quality, and between surface and ground water. Additional projects/assignments reqd for grad cr. Prereq: Math 275 or perm.

Hydr **J468/J568 Aquifer Test Design and Analysis** (3 cr). Same as GeoE J468/J568. Analysis of single and multiple well aquifer tests in a range of hydrogeologic environments. Additional projects/assignments reqd for grad cr. Prereq: Hydr 463 or 563.

Hydr **ID-J470/ID-J570 Groundwater Remediation** (3 cr). Evaluation of techniques for remediation of groundwater contamination problems. Additional projects/assignments reqd for grad cr. Prereq: Geol 309.

Hydr **ID-J472/ID-J572 Groundwater Management** (3 cr). WSU C E 578. Hydrologic, economic, and legal factors controlling development and management of groundwater resources. Additional projects/assignments reqd for grad cr. Prereq or coreq: Geol 309 or Hydr 463.

Hydr **ID-J475/ID-J575 Design and Construction of Water Wells** (3 cr). Same as GeoE ID-J480/ID-J580. WSU C E 506. Analysis of geologic and engineering factors important in design, construction, operation, and maintenance of water wells. Additional projects/assignments reqd for grad cr. Prereq or coreq: Geol 309 or Hydr 463.

Hydr **500 Master's Research and Thesis** (cr arr).

Hydr **501** (s) **Seminar** (cr arr). Graded P/F. Prereq: perm.

Hydr **502** (s) **Directed Study** (cr arr). Prereq: perm.

Hydr **503** (s) **Workshop** (cr arr). Prereq: perm.

Hydr **563 Hydrogeology** (3 cr). See Hydr J463/J563.

Hydr **WS566 Groundwater Geochemistry** (4 cr). WSU C E and Geol 579. Processes controlling the quality and chemistry of groundwater; applications to geologic and water resource problems. Two lec and one 2-hr lab a wk. Prereq: Geol 309 or perm.

Hydr **568 Aquifer Test Design and Analysis** (3 cr). See Hydr J468/J568.

Hydr **569 Contaminant Hydrogeology** (3 cr). Characteristics of contaminant migration in ground water systems including analysis of field problems. Prereq: Geol/GeoE 309 or Hydr J463/J563 and Math 175.

Hydr **ID570 Groundwater Remediation** (3 cr). See Hydr J470/J570.

Hydr **ID572 Groundwater Management** (3 cr). See Hydr J472/J572.

Hydr **ID575 Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

Hydr **577 Computer Applications in Geohydrology** (3 cr). Numerical modeling of groundwater systems with particular emphasis on finite difference methods. Prereq: Geol/GeoE 309, or perm.

Hydr **579 Hazardous Waste Site Remediation Design** (3 cr). See ChE 579.

Hydr **597** (s) **Practicum** (cr arr). Prereq: perm.

Hydr **598** (s) **Internship** (cr arr). Prereq: perm.

Hydr **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Industrial Technology Education

James M. Cassetto, Interim Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).

ITED **110 Technology and Society** (2 cr). See ACTE 110.

ITED **111 Computer Skills** (3 cr). See BuEd 111.

ITED **115 Operational Safety** (3 cr). Fundamentals of industrial safety; fire protection, industrial hygiene, radiological safety, safety regulations.

ITED **120 Principles of Technology** (4 cr) (C). Application of physical science in industrial situations; emphasizes principles rather than specifics of technology; illustrates application of mathematics associated with these principles. Three lec and 4 hrs of lab a wk. Enrollment per section limited to lab stations available.

ITED **130 Basic Electronics** (4 cr) (C). For beginning students with no experience in electricity; properties of resistors, capacitors, and inductors in electrical circuit; basics of power distribution system and house wiring; use of meters and oscilloscopes in lab. Three 1-hr lec and one 2-hr lab a wk. Enrollment per section limited to lab stations available. Knowledge of algebra recommended.

ITED **135 Electrical Systems** (3 cr). Fundamentals of AC/DC circuits and components, motors, transformers, and switchgear, national electrical code wiring requirements.

ITED **200** (s) **Seminar** (cr arr). Prereq: perm.

ITED **203** (s) **Workshop** (cr arr). Prereq: perm.

ITED **204** (s) **Special Topics** (cr arr). Prereq: perm.

ITED **210 Introduction to Industrial Efficiency** (3 cr). Introduction to techniques used by industrial engineers to optimize operations.

ITED **211 Introduction to Quality Assurance** (3 cr). Overview; emphasis on nuclear industry; planning, managing, conducting, and evaluating quality assurance program.

ITED **213 Technical Sketching** (2 cr). Sketching techniques applied to industrial drawing; emphasis on sketching or mechanical drawings, pictorials, and architectural forms. One lec and 1 hr of lab a wk.

ITED **217 Principles of Dimensional Inspection** (3 cr). Concepts, principles, classification, and control in dimensional inspection for quality assurance.

ITED **218 Power, Energy, and Transportation Technology Systems** (4 cr) (C). Internal-external combustion engines; solar, wind, water, biomass, and nuclear energy; lab experience in generating, transporting, and converting energy forms. Enrollment per section limited to lab stations available. Three lec and 4 hrs of lab a wk.

ITED **237 Integrated Circuits and Semiconductor Devices** (3 cr). Basic theory and application of field effects transistors, integrated circuits, op-amps, optoelectronic devices, and miscellaneous semiconductor devices. Enrollment per section limited to lab stations available. Prereq: ITED 130 or equiv.

ITED **238 Digital Electronics** (3 cr). Basic logic circuits used in digital devices; included AND/OR gates, NAND, NOR, Exclusive-or gates, and application of the gates to construct flip-flops, counters, adders, and converters; includes characteristics of logic families and memory devices. Enrollment per section limited to lab stations available. Prereq: ITED 237 or equiv.

ITED **250 Manufacturing Technology Systems** (4 cr). Intro to manufacturing theory, applications, and processes including research and development, starting and organizing manufacturing companies, and product production and marketing. Two lec and 6 hrs of lab a wk.

ITED **253 Advanced Manufacturing Systems Technology** (4 cr) The first phrase of the class concentrates on industrial system manufacturing processing; the second phase on manufacturing organization and management; both phases address societal, environmental, and labor relations of manufacturing. Three lec and 3 hrs of lab a wk. Prereq: ITED 250 or perm.

ITED **263 Structures and Concrete Design** (3 cr). Column and beams design and selection, use of steel construction handbook joint design; simple concrete slab and wall design. Note: Will not substitute for engineering degree requirement.

ITED **265 Computer Aided Drafting/Design** (2 cr) (C). Application of fundamental principles of computer aided drafting and design; theory of and skill development in file creation, digitizing, plotting, and computer assisted design. One lec and 2 hrs of lab a wk.

ITED **270 Technical Competence** (1-10 cr, max 10). Technical competence is gained from experience in areas of concentration related to the bachelor of science degree in vocational education or technology. Grades for successful completion of ITED/PTE 270, 370, and 470 will be transcripted as P (pass) during the student's last semester and completion of all degree requirements. Max 32 cr in any combination of ITED 270, 370, 470, 490, 491, and 492.

ITED **280 Construction Technology Systems** (4 cr) (C). Systems approach to construction technology including residential, commercial, and civil. Three lec and 4 hrs of lab a wk. Enrollment limited to lab stations available.

ITED **299** (s) **Directed Study** (cr arr). Prereq: perm.

ITED **310 Principles of Safety** (3 cr). Applications of safety construction, operations, industry for safety, industrial hygiene, and fire protection. Prereq: Stat 251, Math 143.

ITED **312 Applied Electronics** (3 cr). Advanced properties and components of electronic circuits and systems. Prereq: Math 143, 144.

ITED **314 Principles of Total Quality Management and Quality Assurance** (3 cr). Total quality management, and quality assurance principles and processes as applied in industry including conducting, management, and evaluation. Prereq: Stat 251.

ITED **328 Computer Operating Systems for Technology** (4 cr) (C). Advanced DOS, multi-tasking and network operating systems, planning and maintenance of computer systems. Three lec and 4 hrs of lab a wk. Enrollment per section limited to computer stations available. Prereq: BuEd/ITED 111 or perm.

ITED **330 Industrial Instrumentation I** (3 cr). Use of electronic circuits and devices for process parameter measurements.

ITED **331 Industrial Instrumentation II** (3 cr). Methods of process control from digital and analog signals; investigation of computer control concepts.

ITED **333 Computer Electronics** (3 cr). Logic of circuits, basic circuits used in computers, and interfacing hardware for computer peripherals.

ITED **338 Thermal and Fluid Fundamentals for Technology** (3 cr). Fundamentals of statics, fluid mechanics, thermodynamics, and heat transfer for use in the industrial technology field. Three lec and 4 hrs of lab a wk. Prereq: Math 170, Phys 211, Chem 101; strongly recommended: biochemistry, human physiology.

ITED **340 Nondestructive Examination Techniques and Methods** (3 cr). Intro to nondestructive testing, liquid penetrant exam, magnetic particle exam, and radiography in modern industry.

ITED **360 Communication Technology Systems** (4 cr) (C). Study of communication technology including sub systems of interpersonal human communication and communication between humans and machines. Two lec and 6 hrs of lab a wk.

ITED **362 Environmental Health** (3 cr). Types, mechanisms, and magnitudes of toxicity and their relation to the human system as an industrial environmental problem; all types of metals, compounds, and reagents and their influence on human productivity; sampling and analysis of contaminants.

ITED **363 Fire Protection Safety** (3 cr). Basic industrial fire protection techniques; basic fire chemistry; basic fire suppression/sprinkler design.

ITED **364 Hazardous Materials** (3 cr). Handling, transportation, and storage of hazardous materials; how to protect and suppress fires that occur in hazardous materials.

ITED **365 Industrial Supervision** (3 cr). Principles and practices; duties and responsibilities of plant supervisors; use of rating scales and other employee evaluation devices; supervisory methods used in on-the-job and in-plant training program; methods of conducting job analysis; preparation and use of job descriptions. (Alt/yrs)

ITED **370 Technical Competence** (1-10 cr, max 10). See ITED 270.

ITED **380 Computer Numerical Control Manufacturing** (4 cr) (C). Overview; advanced computer aided drafting, computer aided manufacturing, computer numerical control, and robotics, with lab applications. Enrollment per section limited to lab stations available. Three lec and 3 hrs of lab a wk. Prereq: ITED 265.

ITED **382 Computer Hardware Technology** (3 cr) (C). Hardware and software knowledge and skills necessary to purchase, maintain, and repair personal computer systems; not a beginning computer class. Three lec and 3 hrs of lab a wk. Recommended preparation: knowledge of disk operating systems and multi-tasking systems.

ITED **400** (s) **Seminar** (cr arr). Prereq: perm.

ITED **401 Principles of Quality Assurance** (3 cr). Preparation for Quality Engineering Certificate Exam offered by American Society for Quality Control.

ITED **403** (s) **Workshop** (cr arr). Prereq: perm.

ITED **404** (s) **Special Topics** (cr arr). Prereq: perm.

ITED **J415/J515 Microcomputer Applications** (3 cr). See BuEd J415/J515.

ITED **J419/J519 Information Processing Management** (3 cr). See BuEd J419/J519.

ITED **426 Instructional Design and Curriculum** (3 cr). See ACTE J426/J526.

ITED **429 Student Organizations** (1 cr, max 4). Intro to industrial technology student organizations, including organization, planning, implementation, and evaluation of student activities for industrial technology student organizations. One-half hr lec and 2-1/2 hrs of lab a wk.

ITED **430 Systems Safety Analysis** (3 cr). Principles of system safety; defining a system; risk and consequences; introduction to hazard and risk analyses; systemic accident investigation.

ITED **433 Quality Auditing** (3 cr). Industrial value of audit as a management tool; audit methods and techniques; present practical examples related to real-life applications and benefits.

ITED **434 Quality Assurance Organization and Management** (3 cr). Industrial management principles applied to effective economic control of quality assurance activities.

ITED **435 Industrial Transportation Safety** (3 cr). Principles of safety in all aspects of industrial transportation; roads, railroads, air, water, pipeline.

ITED **440 Piping Systems** (3 cr). System and component selection and specifications, stress calculations, hanger design, schedules and pressure rating. Prereq: ITED 338.

ITED **442 Concrete Design** (3 cr). Structures and component selection and specification, stress calculations hanger design, schedules and pressure rating. Prereq: ITED 338.

ITED **443 Government Contract Law** (3 cr). Contract formation, and contract administration pertaining to government contracts.

ITED **444 Telecommunications** (3 cr). Same as ED 444. Advanced experimental telecommunications theory, telecommunications equipment, and data communications; applications of telecommunications theory and principles at work, at school, and in personal endeavors. Three lec and 2 hrs of lab a wk.

ITED **446 Labor Law** (3 cr). Practical legal considerations in employer/employee relationships, including union contracts.

ITED **448 Construction Safety Principles** (3 cr). Major components of construction health and safety, including hazards, law, written programs, implementation, control and behavior.

ITED **450 Industrial Safety** (3 cr). See PTE 450.

ITED **451 School Lab Planning and Administration** (3 cr). See PTE 451.

ITED **452 Fire Protection System Design** (3 cr). Methods and practical design of fire protection systems (water, gas, chemicals); testing and maintenance of systems. Prereq: perm.

ITED **454 Environmental Health II** (3 cr). Intro of human system response and susceptibility to problems of occupation originating from air conditioning, air cleaning, ventilation, respiratory devices, air pressure, noise, lighting, temperature, and radiation; identification, documentation, and reporting of problems and results.

ITED **456 Environmental Monitoring** (3 cr). Advanced study of personal and area illumination, temperature, ventilation, gas/vapor, biological/ergonomics, noise. Prereq: ITED 362.

ITED **458 Permit Processing** (3 cr). Preparing, processing, implementing, permit requirements, permitting authorities (local, state, federal).

ITED **460 Desktop Publishing** (3 cr) (C). See BuEd 460.

ITED **465 Environmental Regulations** (3 cr). Survey of major environmental statutes and their implementing regulations; emphasis on practical applications.

ITED **470 Technical Competence** (1-12 cr, max 12). See ITED 270.

ITED **472 Industrial Technology Teaching Methods** (3 cr). Dem, lec, and problem solving; preparation and use of instructional aids, individual instruction sheets, and programmed instructional materials.

ITED **475 LAN Technology** (4 cr). Advanced LAN technologies emphasizing design and implementation of most LAN technology systems. Three lec and 4 hrs of lab a wk. Prereq: ITED 328 or Bus 352 or perm.

ITED **485 Waste Management Alternatives** (3 cr). Basic introduction to waste management including regulatory, technical, and political implications of waste management.

ITED **490-491-492 Advanced Technical Competence** (1-10 cr, max 30). Supervised practicum or on-the-job experience designed to enable the student to gain further depth in technical competence as well as in current industrial technology. Graded P/F. Max 32 cr in any combination of ITED 270, 370, 470, 490, 491, and 492.

ITED **499** (s) **Directed Study** (cr arr). Prereq: perm.

ITED **500 Master's Research and Thesis** (cr arr).

ITED **501** (s) **Seminar** (cr arr). Prereq: perm.

ITED **502** (s) **Directed Study** (cr arr). Prereq: perm.

ITED **503** (s) **Workshop** (cr arr). Prereq: perm.

ITED **504** (s) **Special Topics** (cr arr). Prereq: perm.

ITED **510** (s) **Professional Problems** (1-3 cr, max 9). Prereq: perm.

ITED **511** (s) **Technical Problems** (1-3 cr, max 6). Prereq: perm.

ITED **515 Microcomputer Applications** (2-3 cr). See BuEd J415/J515.

ITED **518 Industrial Liability** (3 cr). Workman's compensation, second injury, insurance and self-insurance; third party responsibilities; product liability, personal liability; plant damage.

ITED **519 Information Processing Management** (3 cr). See BuEd J419/J519.

ITED **520 Occupational Health Hazards** (3 cr). Field of industrial hygiene practice; focus on recognition, evaluation, and control of occupational health hazards.

ITED **521 Accident Investigation** (3 cr). System safety concepts, principles, and methods; development of skills in accident investigation, audit and appraisal, operational readiness, and system safety analysis and review. Prereq: ITED 430.

ITED **522 Risk Assessment** (3 cr). Analysis techniques used to determine the risk of industrial, process, nuclear, and aviation industries; fault tree analysis; human reliability analysis; failure mode and effect analysis.

ITED **523 Industrial Safety Applications** (3 cr). Application of engineering science to safety problems; static and dynamic forces on structures, pressure systems; effects of temperature, chemicals, fatigue, and other agencies on strength of materials; use of vectors in engineering analysis.

ITED **543 Administration and Supervision of Learning Programs** (3 cr). See ACTE 543.

ITED **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Interdisciplinary Studies

Kurt O. Olsson, Undergraduate Program Coordinator (112 Admin. Bldg. 83844-3154; phone 208/885-6426); Roger P. Wallins, Graduate Program Coordinator (112 Morrill Hall 83844-3017; phone 208/885-6243).

Intr **101** (s) **Freshman Transition Seminar** (2 cr). Open to freshmen; open to other students with permission. Cr not given for both Intr 101 and 102. Development of strategies for setting academic goals and coping with course work; includes study strategies, university orientation, learning styles, purpose of college, career options.

Intr **102** (s) **Freshman Interest Group** (2 cr). Open to freshmen; open to other students with permission. Cr not given for both Intr 101 and 102. Each seminar is organized around a topic of mutual interest; students study the seminar topic as well as a variety of transition topics such as college study skills and campus resources.

Intr **103 Integrated Science for Elementary Education Majors** (4 cr). Scientific method, physics and chemistry of atoms and molecules, molecules of life, chemical energy and thermodynamics, cellular structure, electrical circuits, tissues and organs. Two 3-hr class meetings a wk. Prereq: Math 143 and elementary ed major.

Intr **104 Integrated Science for Elementary Education Majors** (4 cr). Physics and biology of light, magnets and motors, geological evolution of the earth, forces shaping the earth, meteorology, fossil record and evolution, DNA and genetics, ecology, and topical issues in science. Two 3-hr class meetings a wk. Prereq: Intr 103.

Intr **105 Freshman Interest Group: Career Decision-Making** (2 cr). Not open to students who have taken the career decision-making section of Intr 102. Provides student with an understanding of the career decision-making process; explores students' interests and abilities; provides overview of possible majors and careers through readings, activities, Internet exploration, and interviews with students, faculty, staff, and UI alumni; assists students with development of resume-writing skills.

Intr **106 Freshman Interest Group: Service Learning** (2 cr). Open to freshmen; open to other students with permission. Learning that combines community service with classroom instruction; working with local agencies, exploring service in contexts such as citizenship and activism; using service experiences to enhance communication, critical thinking, and group problem solving; and learning more about society, social relationships, and self.

Intr **126 Film and International Culture** (3 cr). Satisfies core requirement J-3-d. Interdisciplinary approach to diversity of modern culture as reflected in film art; comparative study of U.S. and foreign cultures; intro to film history, techniques, and criticism.

Intr **200** (s) **Seminar** (cr arr). Prereq: perm.

Intr **204** (s) **Special Topics** (cr arr). Prereq: perm.

Intr **299** (s) **Directed Study** (cr arr). Prereq: perm.

Intr **300** (s) **Seminar** (cr arr). Prereq: perm.

Intr **394 Technology and Societal Decisions** (3 cr). Engineering approach to decision making in society, including evaluation of alternatives based upon economic, social, and human values.

Intr **400** (s) **Seminar** (cr arr). Prereq: perm.

Intr **404** (s) **Special Topics** (cr arr). Prereq: perm.

Intr **411 Principles of Environmental Studies I** (3 cr). Historical aspects of environmental attitudes, perspectives, and action including the environmental awakening of the 1960s, environmental legislation of the 1970s, and environmental actions of the 1980s.

Intr **438 Pesticides in the Environment** (3 cr). See Soil 438.

Intr **490 Technology and Human Values** (2-3 cr). Ideological and value implications of technology for the future of humans and their environment.

Intr **497 Tutor Training** (1 cr). Training tutors for the Tutoring and Academic Assistance Center in the areas of learning strategies, study skills, problem solving, communication skills, group dynamics, and special population concerns; administrative recordkeeping and scheduling procedures necessary to the tutoring program. One and one-half hrs of lec a wk. Prereq: perm.

Intr **498 Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Prereq: perm.

Intr **499** (s) **Directed Study** (cr arr). Prereq: perm.

Intr **500 Master's Research and Thesis** (cr arr).

Intr **501** (s) **Seminar** (cr arr). Prereq: perm.

Intr **502** (s) **Directed Study** (cr arr). Prereq: perm.

Intr **503** (s) **Workshop** (cr arr). Prereq: perm.

Intr **504** (s) **Special Topics** (cr arr). Prereq: perm.

Intr **511 Principles of Environmental Studies II** (3 cr). Documents required in environmental studies, mechanics of preparing, use, and meaning of each for environmental action and/or application. Prereq: Intr 411.

Intr **521 Permitting Philosophy and Application** (3 cr). History of permitting and licensing related to environmental policy act (both public and private), regulatory agencies, and permit applications for environmental programs. Prereq: Intr 511.

Intr **551 Environmental Toxicology** (3 cr). General principles in environmental toxicology; pollutants and transport-toxic impacts assessed.

Intr **589 Water Resources Seminar** (1 cr). Same as AgE, CE, Fish, For, Geol, or GeoE 589. Reports by faculty members and grad students on current problems and projects; reports are organized to give maximum interchange of ideas between divisions.

Intr **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Interior Architecture

Robert M. Baron Chair, Dept. of Architecture (207 Art and Arch. South 83844-2451; phone 208/885-6781); Rula Z. Awwad-Rafferty, Acting Director, Interior Architecture (109 Art and Arch. North 83844-2451; phone 208/885-7373).

Note: On registering for a studio course offered in this department, the student agrees that the department may retain work completed by the student. The department will make retained work available to the student for photographing.

IA **151 Interior Architecture** (3 cr). Introduction to residential and commercial design and its relationship to other design disciplines; emphasis areas include basic design theory, vocabulary, and visual awareness of the built environment. Attendance at outside events (such as lectures and symposiums) is required.

IA **152 Interior Architecture I** (3 cr). Study of the relationship of design theory to the interior environment; exploration, through a variety of media, of the elements and principles of design, with emphasis on spatial relationships and color theory. Two lec, four hrs of lab a wk, and assigned work; attendance at outside events; some class jury sessions outside of scheduled hours. Prereq: Art 121, IA 151, or perm; prereq or coreq: Arch 156 or perm.

IA **200** (s) **Seminar** (cr arr). Prereq: perm.

IA **203** (s) **Workshop** (cr arr). Prereq: perm.

IA **204** (s) **Special Topics** (cr arr). Prereq: perm.

IA **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

IA **256 Basic Architectural Design** (3 cr). See Arch 256.

IA **281 History of the Interior I** (3 cr). Historical furnishings, furniture, interior architecture, and decorative arts of Europe from antiquity to beginning of the 20th century.

IA **282 History of the Interior II** (3 cr). Historical furnishings, furniture, interior architecture, and decorative arts of North America from 1620 to present and Europe from 1820 to present. Prereq: IA 281 or perm.

IA **299** (s) **Directed Study** (cr arr). Prereq: perm.

IA **332 Furniture Design and Construction** (3 cr). Fundamental course in furniture design and construction emphasizing the continuing development of three-dimensional design skills and attention to physical detail; aspects of structure, aesthetics, and ergonomics addressed by students who design and construct full-size furniture. One and one-half hrs of lec and 3 hrs of lab a wk. Prereq: IA 281, 282, 351, Arch 374, or perm.

IA **343 Universal Design** (2 cr). Introduction to and application of universal design and accessible design concepts, principles, products, standards, laws, regulations, and guidelines to the design and adaptation of the built environment. Attendance at outside events (such as lectures, simulations) is required. Prereq: IA 256 or Arch 256 or perm.

IA **351-352 Interior Architecture II-III** (4 cr). Intro to small scale commercial interior design theory and problem solving; emphasis on formation of interior spaces to correspond to function and flow patterns. Seven and one-half hrs of studio a wk; field trips reqd at student expense; some class jury sessions outside of scheduled hours. Prereq for IA 351: IA 152, 256 or perm. Prereq for IA 352: IA 351.

IA **368 Materials and Specifications** (3 cr). In-depth study of interior finishes, materials, and products; emphasis on performance characteristics, manufacturing methods, testing, codes, specifications, and professional liability. Field trips reqd at student expense. Prereq: FCS 123 or perm.

IA **400** (s) **Seminar** (cr arr). Prereq: perm.

IA **403** (s) **Workshop** (cr arr). Prereq: perm.

IA **404** (s) **Special Topics** (cr arr). Prereq: perm.

IA **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

IA **441 Design and Human Performance** (2 cr). Introduction to the concepts of human factors and the built environment in relation to design; emphasis areas include ergonomics, performance, anthropometrics, and perception.

IA **451-452 Interior Architecture IV-V** (5 cr). Advanced problems in commercial interior design requiring synthesis of related course work into comprehensive design resolution; projects will seek to refine the design decision making process by requiring development beyond schematic phases, e.g., integration of building systems, lighting design, interdisciplinary investigation, and understanding of cultural/environmental context. Nine hrs of studio a wk and assigned work; field trips reqd at student expense; some class jury sessions will meet outside of scheduled hours. Prereq for IA 451: IA 352, Arch 284 and 374. Prereq for IA 452: IA 451.

IA **478 Professional Practices for Interior Design** (3 cr). Interior designers' duties and responsibilities in professional practice; services, estimating, specifications, billing, and contracts.

IA **482 Introduction to Historic Preservation: Theories and Issues** (2 cr). See Arch 482.

IA **499** (s) **Directed Study** (cr arr). Prereq: perm.

International Studies

Rand C. Lewis, Program Coordinator (1 Cont. Educ. Bldg. 83844-3229; phone 208/885-6527).

IS **200; 400** (s) **Seminar** (cr arr). Prereq: perm.

IS **203; 403** (s) **Workshop** (cr arr). Prereq: perm.

IS **204; 404** (s) **Special Topics** (cr arr). Prereq: perm.

IS **206; 406; 506** (s) **Study Abroad** (cr arr). Prereq: perm of program coordinator.

IS **299; 499** (s) **Directed Study** (cr arr). Prereq: perm.

Landscape Architecture

Stephen R. Drown, Chair, Dept. of Landscape Architecture (207 Art and Architecture 83844-2481; phone 208/885-7448; larch@uidaho.edu; http://www.uidaho.edu/larch).

LArc **155 Introduction to Landscape Architecture I** (1 cr). Graded P/F. Introduction to the profession of landscape architecture; exposure to a range of professional issues through a series of lectures and presentations by faculty and visiting professionals.

LArc **156 Introduction to Landscape Architecture II** (1 cr). Attendance at a series of senior landscape architecture students' critiques and theses; preparation of a paper summarizing and comparing a select number of thesis topics.

LArc **200** (s) **Seminar** (cr arr). Prereq: perm.

LArc **203** (s) **Workshop** (cr arr). Prereq: perm.

LArc **204** (s) **Special Topics** (cr arr). Prereq: perm.

LArc **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

LArc **210 Computer Applications in Landscape Architecture** (2 cr). Exploration of hardware and software tools that are used by landscape architects throughout the design process; emphasis on CAD with an introduction to related landscape architecture specific tools.

LArc **212 Irrigation Workshop** (2 cr). Irrigation as a design process; production of a number of drawings for projects of different scales. Accelerated three-week course.

LArc **247 Landscape Graphics** (3 cr). Development of techniques and skills in various media used in preparation of landscape architecture graphic presentations both in plan and perspective renderings. Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm.

LArc **259 Landscape Architecture I** (6 cr). Introduction to landscape architecture design; emphasis on theory, process, and design elements as they apply to the profession; includes readings, lectures, field trips, small-scale design projects (parks, plazas, courtyards). Nine studio hrs a wk; field trips required at student expense; guest lectures required outside of class meeting time. Prereq: Engl 101 and 102 with minimum grade of C; Art 121.

LArc **260 Landscape Architecture I** (6 cr). Integration and application of principles acquired in plant materials, grading, and drainage, and in LArc 259 to small scale planning and design projects. Selected field trips at student expense; attendance at outside events (lectures, symposiums, films). Prereq: LArc 259.

LArc **270 Landscape Construction I** (4 cr). Grading and drainage, earthwork planimeter computations, cut and fill, and road layout (horizontal/vertical curves). Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm; recommended preparation: Math 137 or 143.

LArc **288 Plant Materials I** (3 cr). Plant identification and selection; use of plant materials in relation to soils, topography, and climate; analysis of design principles in relation to plant compositions. Selected field trips at student expense.

LArc **289 Plant Materials II** (4 cr). Continuation of LArc 288 with emphasis on plant design projects as they relate to small or large scale public and private use areas. Two lec and 4 hrs of lab a wk; selected field trips at student expense. Prereq: LArc 288.

LArc **299** (s) **Directed Study** (cr arr). Prereq: perm.

LArc **ID&WS358 Professional Office Practice in Landscape Architecture** (2 cr). WSU L A 480. Office organization, fees, contracts, bonding, bidding specifications, insurance, and relationships with subcontractors.

LArc **359 Landscape Architecture II** (6 cr). Intermediate scale planning and design problems that emphasize the analysis, development, and presentation of solutions for urban, rural, and regional housing and recreation projects; introduction of senior critique; common project done with Department of Architecture. Selected field trips at student expense. Prereq: LArc 260, LArc 270 or perm.

LArc **360 Landscape Architecture II** (6 cr). Intermediate scale planning and design projects that emphasize sustainable development practices for the urban and rural environment with the application of visual analysis techniques and the use of indigenous plant materials for restoration and rehabilitation. Selected field trips at student expense. Prereq: LArc 359.

LArc **371 Landscape Construction II** (4 cr). Study of landscape construction including electrical lighting, stormwater management, construction detailing, layout and specifications, retaining walls, paving, and the use of sustainable materials. Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm.

LArc **383 Architectural Site Design** (3 cr). Fundamentals of site analysis, site design, and site planning for architects; principles and theories in technical, functional, social, legal, and perceptual issues related to the building site. Non-credit lab section for discussion and presentation of additional technical issues and site-related design projects; field trips and special sessions may be reqd.

LArc **385 GIS Primer** (3 cr). Intro to the theory and applications of geographic information systems (GIS), lab exercises on PC-based GIS package, and guest lecturers from industry and governmental agencies. Three hrs of lec-lab a wk.

LArc **ID&WS389 History of Landscape Architecture** (3 cr) (C). WSU L A 260. Overview of man and the landscape from the pre-Egyptian civilization through Ancient Greece and Rome, the Middle Ages, the Renaissance, the Oriental, and including contemporary styles and trends.

LArc **400** (s) **Seminar** (cr arr). Prereq: perm.

LArc **403** (s) **Workshop** (cr arr). Prereq: perm.

LArc **404** (s) **Special Topics** (cr arr). Prereq: perm.

LArc **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

LArc **459 Landscape Architecture III** (6 cr). Design development and the preparation of contract documents. Selected field trips at student expense; attendance at outside events (lectures, symposiums, films). Prereq: LArc 270, 359, 371.

LArc **460 Landscape Architecture III** (6 cr). Student critique of a professional landscape architectural project; completion of a comprehensive project(s) demonstrating mastery in areas of land planning and/or design, plant materials, construction, graphics, and computers. Prereq: LArc 459.

LArc **480 Issues for the Emerging Landscape** (3 cr). A capstone experience for students in landscape architecture; focus on the emerging issues of landscape architecture and associated disciplines.

LArc **490 Computer-Aided Regional Landscape Planning** (3 cr). Open to all majors. Study of techniques and methods for regional-scale landscape planning using ARC/INFO, a state-of-the-art geographic information system (GIS); application of ecological principles and land use analysis; emphasis on use of GIS as tool for landscape planning and management. Prereq: LArc 385 or Geog 385 or perm.

LArc **499** (s) **Directed Study** (cr arr). Prereq: perm.

LArc **500 Master's Research and Thesis** (cr arr). Prereq: graduate standing.

LArc **501** (s) **Seminar** (cr arr). Prereq: perm.

LArc **502** (s) **Directed Study** (cr arr). Prereq: perm.

LArc **503** (s) **Workshop** (cr arr). Prereq: perm.

LArc **504** (s) **Special Topics** (cr arr). Prereq: perm.

LArc **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

LArc **ID&WS559 Understanding the Northern Rocky Regional Landscapes** (4 cr). WSU L A 520. Biophysical characteristics of the Northern Rocky Mountain regional landscape. Prereq: graduate standing.

LArc **ID&WS560 Cultural Interpretation of Regional Landscapes** (4 cr). WSU L A 521. Cultural characteristics of the Northern Rocky Mountain regional landscape. Prereq: graduate standing.

LArc **ID&WS580 Philosophy and Theory in Contemporary Landscape Architecture** (3 cr). WSU L A 540. Natural and cultural processes that characterize the interaction between humans and the landscape. Prereq: graduate standing.

LArc **ID&WS581 Methodology and Communication** (3 cr). WSU L A 530. Methods of investigation and analysis of tools used for communication in landscape architecture research. Prereq: graduate standing.

LArc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: graduate standing and perm.

Law

John A. Miller, Dean, College of Law (101 Law Bldg. 83844-2321; phone 208/885-6422).

Registration by non-law students in any course offered by the College of Law requires permission in advance by the associate dean and the instructor of the course.

Law **ID511 Legal Process** (3 cr). WSU ES/RP 511. Not open to J.D. candidates for cr toward the degree; will ordinarily be confined to grad students and srs with superior academic records. Designed to acquaint non-law student with legal process in general and role of the judiciary in natural resource management in particular; provide non-law grad students with sufficient legal research, writing, and reasoning skills to enroll in regular law courses.

Law **805 Introduction to Law and Procedure** (3 cr). Introduction to the history, institutions, and philosophy of law; roles and responsibilities of lawyers, nature of legal claims, processes of legal analysis and reasoning, and principles of statutory interpretation; introduction to civil procedure in state and federal courts, including jurisdiction, trials, and preclusive effects of judgments.

Law **806 Procedure II** (3 cr). Continuation of the study of civil procedure from Law 805, including jurisdiction, venue, pleading, joinder of claims and parties, motions, discovery, trials, judgments, and appellate procedure.

Law **807-808 Property I-II** (3 cr). Future interests, landlord and tenant, bailment, easements, covenants respecting the use and enjoyment of land, rights incident to land ownership and fixtures; adverse possession, gifts of personal property, conveyance of land, recording acts, land title assurance, and public control of land use.

Law **809-810 Torts I-II** (3 cr; 2 cr). The common law providing private redress for injuries primarily to person or property; examination of the three basic theories of tort liability: intent, negligence, and strict liability.

Law **812 Criminal Law** (3 cr). The sources and purposes of the criminal law; the meaning of criminal responsibility; the elements of crimes, and the administration of criminal justice.

Law **813-814 Contracts I-II** (3 cr). Basic elements of private, consensual agreements enforced by law: formation, principles of bargain or reliance, methods to police the bargain, interpretation, performance/breach and remedies for breach, defenses to liability, and the rights and liabilities of third parties upon assignment and delegation.

Law **815 Legal Research and Writing** (3 cr). Year-long course. An introduction to traditional and computer-assisted legal research, objective and persuasive legal writing, and oral argument.

Law **901** (s) **Seminar** (cr arr). See the *Time Schedule* for specific topics.

Law **902 Constitutional Law I** (3 cr). An examination of the institution of judicial review and of the constitutional divisions of government power in the United States; the principles of separation of powers and federalism; and the constitutional protection of certain individual rights and liberties, particularly under the 14th amendment.

Law **904 Federal Courts** (3 cr). The constitutional structure and the practical role of the federal court system, with great emphasis on the working relationship between federal and state courts.

Law **905 Constitutional Law II** (3 cr). Continuation from Law 902 of the study of individual rights and liberties protected by the Constitution, with emphasis on civil rights legislation under Section 5 of the 14th Amendment; the "state action" doctrine; and freedom of speech and religion under the First Amendment.

Law **906 Seminar, Natural Resources Law and Policy** (3 cr). Selected topics in natural resources law and policy; topics vary with the interest of the instructor and students.

Law **907 Administrative Law** (3 cr). An examination of (1) the constitutional limits on administrative agencies, (2) the procedural requirements for agency decision making, and (3) judicial review of agency actions; the focus is on federal administrative law.

Law **908 Introduction to the Law of the Workplace** (4 cr). Survey course covering state common law exceptions to the employment at will doctrine, federal anti-discrimination statutes, federal statutory protection of collective activity, and other state and federal law governing the employment relationship; exploration of the processes of hiring, firing, and setting the terms and conditions of employment.

Law **910 Antitrust and Trade Regulation** (3 cr). Regulation of economic activity in a free enterprise system; antitrust laws examined in detail.

Law **911 Principles of Suretyship** (1 cr). General overview of principles of suretyship and guaranty including rights of the guarantor, guarantor's defenses, and unique applications of suretyship doctrine. Accelerated course.

Law **915 International Business Transactions** (3 cr). The study of issues and general rules related to the conduct of business in the international market with emphasis on international sale of goods, and import and export regulation. Prereq: Law 924 or perm. (Alt/yrs)

Law **916 Public International Law** (2 cr). Survey of major areas of the law of nations and international organizations. (Alt/yrs)

Law **917 Negotiation and Alternative Dispute Resolution** (2 cr). Simulation and seminar style instruction in negotiation techniques, mediation and arbitration, focusing on skill development and legal and ethical issues frequently faced by lawyers. Enrollment may be limited. (Alt/yrs)

Law **919 Business Associations** (4 cr). Agency, partnerships, corporations, and other types of business organizations; limitations on powers and authority of partners, corporate officers, and directors.

Law **920 Securities Regulations** (3 cr). The law of corporate finance under the Securities Act of 1993 and the Securities Exchange Act of 1934.

Law **921 Basic Legal Accounting** (1 cr). Examination of basic accounting principles designed as background for the tax and business law courses for those students without accounting and business experience and intended to make the lawyer conversant with accountants. Accelerated course.

Law **922 Unfair Competition** (2 cr). Survey of the common law and statutory means by which a business can protect its names, the marks used to identify its products and services, and the ideas, information, and business relationships which it has developed; trade names, trademarks, trade secrets, and other aspects of the law regulating unfair competition.

Law **923 Negotiable Instruments, Bank Collections and Deposits, and Other Payment Systems** (3 cr). The study of paper based and other methods of payment under state and federal law with primary focus on the law of Negotiable Instruments under Article 3 of the Uniform Commercial Code, Bank Deposits and Collections, and Electronic Funds Transfers under Articles 4 and 4A of the UCC and Federal Reserve Board Regulations J and CC and related federal statutes. (Alt/yrs)

Law **924 Sales** (3 cr). The study of the law relating to the sale of goods under Article 2 of the Uniform Commercial Code and related statutes and treaties, including introduction to the structure, purposes, and policies of the Uniform Commercial Code.

Law **925 Creditors' Rights and Secured Transactions** (3 cr). Comparison of unsecured and secured credit: analysis of the creation, perfection, priority, and enforcement of judicial and statutory liens and consensual Article 9 security interests; includes methods used to collect debts and judgments and the interplay between Article 9 and other law, such as the Federal Tax Lien Act and agricultural statutory liens.

Law **926 Bankruptcy** (3 cr). Federal bankruptcy law, the collective forum for resolving the rights of financially distressed debtors and their creditors, emphasizing basic principles applicable to all filings, liquidation, or rehabilitation of consumer debtors, and the pervasive effect of bankruptcy on everything from family law to business transactions and relationships.

Law **927 Business Entities Taxation** (3 cr). Examination of the federal taxation of pass-through entities and corporations; topics include formation, operations, allocation, distributions, and liquidation; the opportunity to study the concepts of business enterprise taxation as an integrated unit.

Law **930 Taxation** (3-4 cr). Income and deductions, accounting methods, transactions resulting in capital gain, deferral of tax, and choice of the taxable person; introduction to tax procedure and to income taxation of trusts, estates, and partnerships.

Law **932 Estate Planning** (3 cr). Inter vivos, testate, and intestate disposition of property with emphasis upon estate and gift tax impact and consideration of the law of future interests. Prereq or coreq: Law 941.

Law **935 Idaho Constitutional Law** (1 cr). Survey of the Idaho Constitution, with particular emphasis on those sections that caused controversy at Idaho's constitutional convention and remain important today.

Law **936 American Legal History** (2 cr). History of American legal doctrine and institutions and their social, economic, and political underpinnings.

Law **937 Natural Resources Law and Legal History** (3 cr). Historical examination of the role of law in shaping the evolution of resource use and management in the Pacific Northwest.

Law **941 Wills, Estates, and Trusts** (3 cr). Intestate succession, wills, and administration of estates in probate.

Law **942 Water Law** (3 cr). Acquisition and scope of water rights, water pollution control, and other environmental regulations, water distribution organizations, federal-state relations in water resource management.

Law **943 Real Estate Finance** (3 cr). Mortgages, deeds of trust, installment land contracts, construction financing, mechanics' liens, sale and leasebacks, and ground leases; brief coverage of condominiums, shopping center leases, and real estate listing agreements.

Law **944 Local Government and Land Use Law** (3 cr). Legislative, regulatory, tax, and borrowing authority of local government; contract and tort issues; special attention to land use regulation. A research paper may be required instead of an examination depending on size of class. Enrollment of second-year students may be limited by instructor.

Law **945 Community Property** (2 cr). Special problems that arise in connection with the community property system in the western states.

Law **ID947 Environmental Law** (3 cr). WSU ES/RP 548. Environmental planning and protection, regulation of air and water pollution, waste disposal, use of pesticides and other toxic chemicals, and remedies for environmental injury.

Law **ID948 Public Land Law** (3 cr). WSU ES/RP 549. History of public lands; special problems arising from ownership of land by governments.

Law **949 Indian Law** (3 cr). Study of judicial, statutory, and administrative materials concerning the historical development of Federal Indian Policy, treaties, the trust relationship, tribal sovereignty and self-government, civil and criminal jurisdiction, rights of individual Indians, state's rights, hunting and fishing rights, and the natural resources of tribes.

Law **950 Evidence** (3 cr). The law governing the presentation of proof in Idaho and federal courts.

Law **952 Remedies** (3 cr). Consideration of legal and equitable relief available to aggrieved parties in contractual or other relationships.

Law **953 Criminal Procedure** (3 cr). Search and seizure, arrest, interrogation, identification, right to counsel, and guilty pleas, with special attention to constitutional law and pre-trial procedures.

Law **954 Practice Court** (3 cr). Instruction in the skills fundamental to litigation and the techniques of persuasive witness examination and argument, combining classroom instruction and individually critiqued student exercises. Prereq: Law 950 and perm.

Law **955 Appellate Advocacy Program** (1 or 2 cr). A brief writing seminar including two briefs and the preliminary oral arguments of the McNichols Competition; the faculty adviser is the final arbiter of the number of credits awarded within the guidelines. Graded P/F; credits earned are not class hours.

Law **956 Appellate (Moot) Court/Mock Trial** (1 or 2 cr). Preparation of appellate briefs and argument of cases orally in regional or national competition; grading and evaluating briefs of students participating in second-year appellate advocacy program (with approval of the faculty adviser of the second-year appellate advocacy program); the faculty supervisor of each competition is the final arbiter of the number of credits awarded within the guidelines. Graded P/F; credits earned are not class hours. Only those students who will complete all the activities for their appellate moot court program (including attending the competition) by the end of fall semester may register for credits in the fall semester; all other students eligible for credits under this course register in the spring. Graded P/F; credits earned are not class hours.

Law **957 Mock Trial** (2 cr). Participation as an attorney on a mock trial team in regional or national competition; the faculty supervisor of each competition is the final arbiter of the credits awarded within the guidelines.

Law **958 Trial Advocacy** (2 cr). An intensive seven-day course offered the week before classes regularly begin in the fall. The course follows the national Institute of Trial Advocacy Training format of faculty demonstration, discussion, student performance, and critique, culminating in a mock jury trial on the last day of the training. Limited enrollment. Graded P/F. Prereq: Law 950 and perm.

Law **960 Conflict of Laws** (2 cr). A study of the principles for deciding which law applies to incidents and transactions crossing state lines and of the constitutional limitations on a state's rights to impose its own law in suits arising out of such incidents and transactions; enforcement of foreign judgments, the jurisdiction of courts, and the special jurisdictional problems in domestic relations cases.

Law **961 Jurisprudence** (2 cr). Consideration of the various views and philosophies of law as expressed in classical and contemporary writings; methods of legal analysis, the relationship between law and justice, between law and power, and between law and truth.

Law **962 Professional Responsibility** (2 cr). Status and function of the legal profession, responsibility to clients, the profession, the public, and the administration of justice.

Law **963 Family Law** (3 cr). Legal problems of the family, including marriage, annulment, adoption, and divorce.

Law **971 Lawyering Process Seminar** (2 cr). Client representation skills, with an emphasis on pre-trial civil litigation; classroom and simulation instruction in interviewing, counseling and negotiating skills, pleading, discovery, and motion practice. Enrollment may be limited.

Law **972 Legal Externship** (1 cr). Legal work under the supervision of judges or government, non-profit, or private attorneys. Graded P/F; credits earned are not class hours. Prereq: approval of Director of Clinical Programs under standards approved by the faculty and available to students and supervising attorneys.

Law **973 Public Service Externship** (1-10 cr, max 10). Includes placements with judges, prosecutors, public defenders, other government attorneys, or attorneys for non-profit organizations. The following courts and offices have programs with standing approval of the director: The Supreme Court and Court of Appeals of Idaho, the United States Court of Appeals for the Ninth Circuit, the United States District Court for the District of Idaho, the Attorney General of Idaho, and the United States Attorney for the District of Idaho. Graded P/F; credits earned are not class hours. Prereq: approval of Director of Clinical Programs under standards approved by the faculty and available to students and supervising attorneys.

Law **974 Legal Aid Internship** (3 cr, max 6). In this two-semester course, students represent clients in civil and criminal cases. Field trips required when appropriate for serving clients. Prereq: qualification for limited license in Idaho, Law 950 and 971, and perm; coreq: Law 958; Law 953 recommended.

Law **975 Classroom Credit Public Service Externship** (5 cr). Students work in selected public service placements under the supervision of experienced judges and lawyers; attendance at a weekly seminar required (the seminar is available in Moscow, Boise, Coeur d'Alene, and Idaho Falls through interactive video). Graded P/F. Prereq: perm. (Summer)

Law **982 Law Review** (1-4 cr, max 4). Graded P/F; credits earned are not class hours. The awarding of credit is subject to approval by the editor-in-chief and faculty adviser.

Law **983 Legal Research** (1-2 cr, max 4). Individual research on a significant legal problem and the writing of a paper thereon that must be approved by the faculty member under whose direction the work is done. Graded P/F; credits earned are not class hours. Prereq: perm.

Law **999** (s) **Study Abroad or Off Campus** (cr arr). Graded P/F. Prereq: perm of associate dean, College of Law.

Library Science

Cherie R. Major, Director, Div. of Teacher Education (404B Educ. Bldg. 83844-3082; phone 208/885-6587).

LibS **299** (s) **Directed Study** (cr arr). Prereq: perm.

LibS **400** (s) **Seminar** (cr arr). Prereq: perm.

LibS **404** (s) **Special Topics** (cr arr). Prereq: perm.

LibS **C419 Computer Applications in Libraries** (3 cr). Trends and developments in library automation; practical applications of microcomputers to library work and administration. Note: This is an academic course intended to teach fundamental terms and concepts. It is not a course on automating a library.

LibS **C420 Classification and Cataloging** (4 cr). Organization of library materials, principles of cataloging, subject analysis, classification, bibliographic methods, Dewey decimal system.

LibS **C421 Acquisitions and Collection Development in Libraries** (3 cr). Evaluation and selection of books and other materials for libraries; analysis of community library needs and interests.

LibS **C422 Use of the School Library** (2 cr). Methods of interesting students in the library and using it to best advantage.

LibS **C423 Introduction to Reference Work** (3 cr). Reference books in school and public libraries; selecting reference collections.

LibS **C424 Information Sources on the Internet for Libraries** (3 cr). Principles of development and trends in Internet information resources that libraries access and use; emphasis on searching, evaluating, and providing to patrons needed reference material.

LibS **C425 Organization and Management of Small Libraries** (4 cr). Organization and management of school libraries.

LibS **C427 Library and Media Center Practicum** (1-3 cr). Experience in a library or other information center under professional supervision. Ninety hours of supervised experience per credit. Prereq: 6 cr in library and information science and perm.

LibS **499** (s) **Directed Study** (cr arr). Prereq: perm.

Martin Institute

Richard A. Slaughter, Director, Martin Institute for Peace Studies and Conflict Resolution (1 Cont. Educ. Bldg. 83844-3229; phone 208/885-6527).

Mrtn **486 Public Involvement in Natural Resource Management** (3 cr). See RRT 486.

Mrtn **490 The Causes of War** (3 cr). Scientific analysis of the causes of the major wars since World War I. Cr not granted for both Mrtn 490 and PolS 449.

Mrtn **496 International Organizations and International Law** (3 cr). See PolS 440.

Mathematics

James E. Calvert, Chair, Dept. of Mathematics (300 Carol Ryrie Brink Hall 83844-1103; phone 208/885-6742).

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: Math 170-175-275-471-472.

CREDIT LIMITATIONS: Math 107 carries no credit after Math 137 or 143; Math 137 carries no credit after Math 143; Math 143 carries no credit after 160 or 170; Math 161 carries no credit after Math 175; Math 170 carries 2 credits after 160; Math 160 carries no credit after 170.

Also see regulation J-5-e.

Math **107 Intermediate Algebra** (3 cr) (C). Carries no credit after Math 137 or 143. Review of algebra including factoring, rational expressions, exponents, radicals, quadratic equations, equations of lines. Does not satisfy core requirement.

Math **123 The Spirit of Mathematics** (3 cr). May be used as core credit in J-3-c. For students who are curious about what mathematics is and what mathematicians do but who do not plan to use mathematics as a tool in their careers; discussion of some aspects of mathematics through study of problems of "applied" and of "pure" type, taken from areas such as number theory, geometry, topology, probability, and combinatorics; discussion of the historical development.

Math **130 Finite Mathematics** (3 cr) (C). May be used as core credit in J-3-c. Systems of linear equations and inequalities, matrices, linear programming, and probability. Prereq: 1 yr high school algebra, 1 yr plane geometry, and sufficient score on SAT, ACT, or Math Placement Test.

Math **137 Algebra with Applications** (3 cr). May be used as core credit in J-3-c. Carries no credit after Math 143. Algebraic, exponential, logarithmic functions, systems of equations, applications. Prereq: 1-1/2 years high school algebra, 1 yr high school plane geometry, and sufficient score on SAT, ACT, or Math Placement Test; or Math 107 with grade of C or better. To remain enrolled in the course a student must pass an Algebra Skills Test given within the first three weeks of the course. It is recommended that Math 137 be taken within two years of passing Math 107 or its equivalent.

Math **143 Pre-calculus Algebra and Analytic Geometry** (3 cr) (C). May be used as core credit in J-3-c. Carries no credit after Math 160 or 170; carries 2 credits after Math 137. Algebraic, exponential, logarithmic functions; graphs of conics; zeros of polynomials; systems of equations, induction. Prereq: 1-1/2 yrs high school algebra, 1 yr high school plane geometry, and sufficiently high score on SAT, ACT, or Math Placement Test; or Math 107 with grade of C or better. To remain enrolled in the course a student must pass an Algebra Skills Test given within the first three weeks of the course. It is recommended that Math 143 be taken within two years of passing Math 107 or its equivalent.

Math **144 Analytic Trigonometry** (2 cr) (C). Not open for cr to students who have previous high school or college cr in trigonometry. Trigonometric functions, inverse functions, applications. Prereq: 2 yrs high school algebra (or Math 143) and 1 yr plane geometry, and perm of dept. Concurrent enrollment in Math 143 or 170 permitted.

Math **160 Survey of Calculus** (4 cr) (C). May be used as core credit in J-3-c. Carries no credit after Math 170. Functions, graphing, derivative, integral, exponential and logarithmic functions, functions of several variables. Prereq: One yr of high school geometry and one of the following: (1) 1-1/2 yrs high school algebra and sufficiently high score on SAT, ACT, or Math Placement Test, or (2) Math 137, or (3) Math 143, or (4) a grade of A or B in Math 107.

Math **161 Survey of Calculus II** (3 cr). Carries no credit after Math 175. Functions of several variables, integration, probability, and infinite series; applications to business, social sciences, and the life sciences. Prereq: Math 160.

Math **170 Analytic Geometry and Calculus I** (4 cr) (C). May be used as core credit in J-3-c. Carries 2 credits after Math 160. Functions, limits, continuity, differentiation, integration, applications, differentiation and integration of transcendental functions. Prereq: Math 143, or 2 yrs high school algebra and 1 yr plane geometry and 1/2 yr analytic trigonometry and sufficiently high score on SAT, ACT, or Math Placement Test.

Math **175 Analytic Geometry and Calculus II** (4 cr). Differentiation and integration of transcendental functions, integration techniques, general mean value theorem, numerical techniques, and series. Prereq: Math 170.

Math **176 Discrete Mathematics** (3 cr). Induction, set theory, graph theory, number systems, Boolean algebra, and elementary counting. Prereq: two yrs high school algebra and sufficiently high score on SAT, ACT, or Math Placement Test; or Math 143.

Math **202** (s) **Seminar** (cr arr). Prereq: perm.

Math **204** (s) **Special Topics** (cr arr). Prereq: perm.

Math **215 Seminar in Topology of the Plane** (3 cr). Carries no credit after Math 411 or 471. Primary goal is to teach students to prove theorems; open and closed sets, connectedness, compactness, continuity, etc. Class size limited to 15. Prereq: Math 170, 175, and perm.

Math **235 Mathematics for Elementary Teachers I** (3 cr) (C). Mathematical development of arithmetic and problem solving as those subjects are currently taught in elementary schools. Three lec and one 1-hr lab a wk. Prereq: passing Arithmetic Skills Test, 1 year of plane geometry, and Math 143 or 137 (or sufficient score on SAT, ACT, or Math Placement Test).

Math **236 Mathematics for Elementary Teachers II** (3 cr) (C). Mathematical development of informal geometry, problem solving, and probability and statistics as those subjects are currently taught in elementary schools. Three lec and one 1-hr lab a wk. Prereq: Math 235.

Math **253 Principles of Statistics** (3 cr). See Stat 251.

Math **255 Applied Actuarial Science I** (0 cr). Review of calculus and linear algebra in preparation for Actuarial Exam 1. Prereq: Math 275, 330.

Math **275 Analytic Geometry and Calculus III** (3 cr). Vectors, functions of several variables, and multiple integration. Prereq: Math 175.

Math **286 Theory of Numbers** (3 cr). Elementary number theory, including divisibility properties, congruences, and Diophantine equations. Prereq: Math 143 or perm.

Math **299** (s) **Directed Study** (cr arr). Prereq: perm.

Math **310 Ordinary Differential Equations** (3 cr). Classification, initial and boundary value problems of one variable, exact equations, methods of solving higher-order linear equations, second-order equations with constant coefficient, series solutions, systems of linear equations, Laplace transforms, and existence theorems. Prereq: Math 175 (275 recommended).

Math **H315 Topics in Pure Mathematics** (3 cr). Carries no credit after Math 215. A topic selected each yr that develops skill and appreciation for theoretical nature of mathematics. Prereq: Math 160 or 170 and perm of director of University Honors Program.

Math **326 Linear Programming** (3 cr). Geometric solutions, simplex method, duality and revised simplex method, sensitivity, integer programming, applications. Prereq: Math 160 or 170.

Math **330 Linear Algebra** (3 cr). Linear equations, matrices, linear transformations, eigenvalues, diagonalization; applications. Prereq: Math 160 or 170.

Math **346 Applied Combinatorics** (3 cr). Elementary counting methods, generating functions, recurrence relations, Polya's enumeration, enumeration of graphs, trees, searching, combinatorial algorithms. Prereq: Math 175; recommended prereq: Math 176 or 376 or 475.

Math **371 Mathematical Physics** (3 cr). See Phys 371.

Math **376 Discrete Mathematics II** (3 cr). Selected topics from discrete mathematics such as graph theory, modeling, and optimization. Prereq: Math 176 or perm.

Math **390 Geometry** (3 cr). Topics chosen from finite geometries, Euclidean and non Euclidean geometries, convexity, transformational geometry, and intuitive geometry. Prereq: high school geometry and Math 215, or perm.

Math **400** (s) **Seminar** (cr arr). Prereq: perm.

Math **404** (s) **Special Topics** (cr arr). Prereq: perm.

Math **411 Elementary Topology** (3 cr). Metric spaces; topological spaces; compactness; connectedness, continuity. Prereq: Math 275 or perm. (Alt/yrs)

Math **420 Complex Variables** (3 cr). Complex numbers, elementary functions, derivatives, the residue theorem, conformal mappings, contour integration, infinite series, applications. Prereq: Math 275. (Alt/yrs)

Math **426 Discrete Optimization** (3 cr). Optimization on graphs, networks and flows, and related topics. Prereq: Math 175. (Alt/yrs)

Math **432 Numerical Linear Algebra** (3 cr). Analysis of efficiency and accuracy of large linear algebra problems; special emphasis on solving linear equations and finding eigenvalues. Prereq: Math 275, 330, and knowledge of a computer language. (Alt/yrs)

Math **433 Numerical Analysis** (3 cr). Analysis of numerical methods useful in solving applied problems; solution of nonlinear equations, interpolation, numerical differentiation and integration, numerical solution of differential equations. Prereq: Math 275, 330, and knowledge of a computer language.

Math **435** (s) **Topics in Applied Mathematics** (cr arr). Topics chosen from fields of current interest in applied mathematics; inquire at the Department of Mathematics for a description of topics for future semesters. Prereq: perm.

Math **437 Mathematical Biology** (3 cr). Modeling biological phenomena, mostly through differential equations; mathematical topics include stability analysis and limit cycles for nonlinear ODE's, spatial diffusion and traveling waves for PDE's; biological topics include models of predator-prey systems, infectious diseases, and competition. Prereq: Math 310 or perm.

Math **ID&WS451 Probability Theory** (3 cr). Same as Stat 451. WSU Math 443. Random variables, expectation, special distributions (normal, binomial, exponential, etc.), moment generating functions, law of large numbers, central limit theorem. Prereq: Math 275.

Math **ID&WS452 Mathematical Statistics** (3 cr). Same as Stat 452. WSU Math and Stat 456. Estimation of parameters, confidence intervals, hypothesis testing, likelihood ratio test, sufficient statistics. Prereq: Math 451.

Math **ID&WS-J453/ID&WS-J538 Stochastic Models** (3 cr). Same as Stat J453/J544. WSU Stat 544. Markov chains, stochastic processes, and other stochastic models; applications. Additional projects/assignments reqd for grad cr. Prereq: Math 451 or perm. (Alt/yrs)

Math **455 Applied Actuarial Science II** (0 cr). Review of probability theory in preparation for Actuarial Exam 1. Prereq: Math 451.

Math **461-462 Abstract Algebra** (3 cr). Groups, rings, and fields. Recommended prereq for Math 461: at least one of the following: Math 215, 286, 330, 390.

Math **471-472 Advanced Calculus** (3 cr). Topology of Euclidean n-space, limit and continuity, differentiation, integration. Prereq: Math 275 and 215, or perm.

Math **475 Analysis of Algorithms** (3 cr). Same as CS 495. Measures of efficiency; standard methods and examples in the design and analysis of algorithms. Prereq: CS 213 and Math 175.

Math **480 Partial Differential Equations** (3 cr). Intro to Fourier analysis, application to solution of partial differential equations; classical partial differential equations of engineering and physics. Prereq: Math 310. (Alt/yrs)

Math **485 Theory of Computation** (3 cr). Same as CS 490. Mathematical models of computation, including finite automata and Turing machines. Prereq: perm.

Math **490 Introduction to Set Theory** (3 cr). Set operations, functions, binary operations and relations, cardinal and ordinal numbers, axiom of choice, partially ordered sets, and Zorn's lemma. Prereq: Math 275. (Alt/yrs)

Math **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm of dept.

Math **499** (s) **Directed Study** (cr arr). Prereq: perm.

Math **500 Master's Research and Thesis** (cr arr).

Math **501** (s) **Seminar** (cr arr). Prereq: perm.

Math **502** (s) **Directed Study** (cr arr). Prereq: perm.

Math **504** (s) **Special Topics** (cr arr). Prereq: perm.

Math **505** (s) **Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Prereq: perm.

Math **510 Seminar on College Teaching of Mathematics** (1 cr). Development of skills in the teaching of college mathematics; includes structure of class time, test construction, and various methods of teaching mathematics; supervision of instructional assistants in their beginning teaching assignments. Graded P/F. Prereq: perm.

Math **513 Problem Solving Through History** (3 cr) (Math 441). Historical study of approaches to solving problems in geometry, number theory, and set theory. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **514 Foundations of Calculus** (3 cr) (Math 443). Real numbers, sequences, topology of the real numbers, continuous functions, differentiation, and integration; emphasis on developing the conceptual understanding needed to teach calculus in secondary school. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **515 Problems in Geometry** (3 cr) (Math 444). Exploration of topics in geometry with emphasis on developing geometric reasoning and problem solving. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **516 Groups and Symmetry** (3 cr) (Math 445). Exploration of groups, symmetry, and permutations. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.

Math **519** (s) **Special Topics** (cr arr) (Math 449). Special topics of interest to mathematics teachers. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs. Prereq: perm.

Math **ID&WS521-ID&WS522 Topology** (3 cr) (Math ID&WS511-ID&WS512). WSU Math 525-526. Basic concepts of point set and algebraic topology. (Alt/yrs)

Math **ID523-ID524 Algebraic Topology** (3 cr). WSU Math 527-528. Basic homotopy theory, covering spaces, homology theory, and applications. (Alt/yrs)

Math **525** (s) **Seminar in Topology** (1-3 cr, max arr) (Math 521). Current literature.

Math **526** (s) **Topics in Topology** (1-3 cr, max 12).

Math **528 Differentiable Manifolds** (3 cr). Fundamentals of smooth manifolds, tangent spaces, vector fields, Lie groups, integration on manifolds, and applications. Prereq: Math 411 or 521, and 471.

Math **ID&WS531 Complex Variables** (3 cr). WSU Math 503. Theory of functions of a complex variable. (Alt/yrs)

Math **535 Real Variables** (3 cr). Measure and integration theory for functions of one or several variables. (Alt/yrs)

Math **536 Probability Theory** (3 cr). Random variables, characteristic functions, convergence theorems, central limit theorem, conditional probability, and stochastic processes as developed from a measure theoretic basis. Prereq: Math 535 or perm. (Alt/yrs)

Math **ID&WS538 Stochastic Models** (3 cr). See Math J453/J538.

Math **ID&WS539 Theory of Ordinary Differential Equations** (3 cr). WSU Math 512. Existence, uniqueness, and stability of solutions of first-order systems; other topics. (Alt/yrs)

Math **540 Partial Differential Equations** (3 cr). Existence and uniqueness theorems for the wave, heat, and Laplace's equations of physics; additional topics such as nonlinear models in mathematical biology, perturbation methods, etc. Prereq: Math 539 or perm.

Math **ID&WS541** (s) **Seminar in Analysis** (1-3 cr, max arr). WSU Math 581. Current literature.

Math **WS543 Approximation Theory** (3 cr). WSU Math 543.

Math **WS544 Advanced Matrix Computations** (3 cr). WSU Math 544.

Math **WS547 Numerical Analysis of Elliptic PDE's** (3 cr). WSU Math 546.

Math **ID550 Linear Algebra** (3 cr). WSU Math 554. Vector spaces, direct sums, quotient spaces, similarity, Jordan forms, inner products, eigenvalues, eigenvectors, spectral theory. (Alt/yrs)

Math **ID551 Ring Theory** (3 cr). WSU Math 551. Ideals, quotient rings, modules, radicals, semisimple Artinian rings, Noetherian rings. (Alt/yrs)

Math **ID552 Galois Theory** (3 cr). WSU Math 552. Field extensions, automorphisms, normality, splitting fields, radical extensions, finite fields, separability. A knowledge of group theory is presumed. (Alt/yrs)

Math **553 Group Theory** (3 cr). Permutation groups, isomorphisms, direct products, Sylow theory, normal series, abelian groups. (Alt/yrs)

Math **WS554 Advanced Topics in Geometry** (3 cr). WSU Math 550. (Alt/yrs)

Math **ID&WS561** (s) **Seminar in Algebra** (1-3 cr, max arr). WSU Math 582. Current literature.

Math **563 Mathematical Methods for Population Genetics and Evolution** (3 cr). Same as Biol 563. Investigation of aspects of evolutionary biology with an emphasis on stochastic models and statistical methods; topics include: diffusion methods in molecular evolution, gene genealogies and the coalescent, inferring coalescent times from DNA sequences, population subdivision and F statistics, likelihood methods for phylogenic inference, statistical hypothesis testing, the parametric bootstrap. Prereq: Math 160 or 170 and Stat 251 or 301.

Math **ID&WS571-ID&WS572 Functional Analysis** (3 cr). WSU Math 504-506. Linear topological spaces and linear operators. Prereq: Math 536. (Alt/yrs)

Math **575-576 Graph Theory** (3 cr). Basic concepts and theorems; topics include trees and connectivity, eulerian and hamiltonian graphs, graph colorings, matchings, graph decomposition, and extremal graph theory. (Alt/yrs)

Math **578 Combinatorial Optimization** (3 cr). Optimization problems on graphs, network flow problems, complexity analysis of algorithmic solutions, and related topics. (Alt/yrs)

Math **581** (s) **Seminar in Combinatorics** (1-3 cr, max arr).

Math **WS583 Seminar in Applied Mathematics** (3 cr, max arr). WSU Math 583.

Math **585-586** (s) **Recent Developments in Mathematics** (3 cr, max arr). For students with extensive background in specific areas of mathematics.

Math **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Math **600 Doctoral Research and Dissertation** (cr arr).

Mechanical Engineering

Ralph S. Budwig, Chair, Dept. of Mechanical Engineering (324I Engineering/Physics Bldg. 83844-0902; phone 208/885-6579).

Note: Pre-advising is required for all mechanical engineering courses; consult the department office to be assigned to an adviser.

ME **103 Introduction to Engineering** (2 cr). Intro to engineering career opportunities through analysis of engineering design problems; includes computer graphics, programming languages, economics, and statistics. (Summer short course for JEMS Program)

ME **122 Mechanical Engineering Survival Skills** (1 cr). Introduction and review of learning and other skills needed to be successful in mechanical engineering classes. One 2-hr lab a wk. Coreq: ME 123.

ME **123 Introduction to Mechanical Design** (3 cr). Introduction to engineering design process and analysis techniques including problem solving skills, development of software learning skills, graphical analysis, data analysis, economic decision making, documentation skills, and use of structured programming concepts in designing personal applications. Three lec and one open 2-hr lab a wk. Coreq: Math 170 or ME 122.

ME **223 Mechanical Design Analysis** (3 cr). Use of a design and problem solving methodology in the creation of application programs; matrix methods; numerical integration; solution of differential equations; oral/written communication. Three lec and one 2-hr open lab a wk. Prereq: Engr 105, ME 123; coreq: Math 175.

ME **261 Engineering Materials** (3 cr). Same as Met 201. Fundamental factors in influencing properties and selection of materials. Prereq: Chem 111.

ME **262 Sophomore Laboratory** (2 cr). Materials foundation of mechanics; testing of structures subject to axial, torsion, and bending loads as well as thin-walled pressure vessels; use of computers for data reduction and analysis; development of engineering record keeping skills. One lec and 2 hrs of lab a wk. Prereq: Engr 210; coreq: ME 223.

ME **301 Advanced Engineering Graphics** (3 cr). Two and three dimensional graphics applications; use of solid modeling software in engineering design; integration of computer-aided design, analysis, and manufacturing. Prereq: ME 223, Engr 105.

ME **304 Materials Selection and Processing for Mechanical Design** (3 cr). Selection of materials for mechanical design based on material properties, processing, and service conditions. Prereq: ME 261 or Met 201, ME 262; coreq: Engr 350.

ME **307-308 Group Mentoring I-II** (1 cr). Mentoring of student groups in engineering classes where a process education environment is used; students taking this course will improve their engineering skill in the area they are mentoring as well as improving their team, communication, and leadership skills. Students must attend all classes or labs where group activities in the process education environment are done (a minimum of 2 mentoring sessions per week). Prereq: perm.

ME **313 Dynamic Modeling of Engineering Systems** (3 cr). Application of basic engineering principles to model and analyze the dynamic response of engineering systems; problem solutions will utilize transfer function methods, state variable techniques, and simulation software. Prereq: ME 223, Engr 220 and 240, Math 310.

ME **323 Mechanical Engineering Design Seminar** (3 cr) (ME 391). Professional practice and technical topics including ethics, safety, engineering practice; green engineering, societal impact, health and safety, and manufacturability related to engineering design; emphasis on further development of oral presentation and writing skills. Prereq: ME 223.

ME **ID&WS324 Dynamic Analysis in Machine Design** (3 cr). WSU M E 312. Kinematic, static, and dynamic principles and application to analysis and synthesis of machines with emphasis on computer-aided design (CAD) techniques. Two lec and one 3-hr lab a wk; one 1-day field trip. Prereq: Math 310, Engr 220, ME 223.

ME **330 Experimental Methods for Engineers** (3 cr). Measurement systems and their application to engineering problems; topics include generalized performance of measurement systems, measuring and control devices, data acquisition and analysis, and report writing. Two lec and one 2-hr lab a wk. Prereq: ME 223, 262; coreq: Engr 240, 320, 335, and 350.

ME **341 Intermediate Mechanics of Materials** (3 cr). Mechanics of materials approach to three dimensional stress and strain, plates, curved beams, pressure vessels, non-circular torsion and unsymmetrical ending; introduction to elementary energy methods and advanced strength theories. Prereq: Engr 350.

ME **ID&WS345 Heat Transfer** (3 cr). WSU M E 404. Transmission by conduction of heat in steady and unsteady states, by free and forced convection, and by radiation; combined effects of conduction, convection, and radiation. Prereq: ME 223, Engr 320, Math 310.

ME **398-399** (s) **Engineering Cooperative Internship I-II** (cr arr). Supervised internship in professional engineering settings, integrating academic study with work experience; requires written report to be evaluated by a designated faculty member; details of coop to be arranged with ME Department before start of coop; cannot be counted as a technical elective. Graded P/F. Prereq: perm.

ME **404** (s) **Special Topics** (cr arr). Prereq: perm.

ME **407-408 Group Mentoring III-IV** (1 cr). Mentoring of student groups in engineering classes where a process education environment is used; students taking this course will improve their engineering skill in the area they are mentoring as well as improving their team, communication, and leadership skills. Student must attend all classes or labs where group activities in the process education environment are done (a minimum of 2 mentoring sessions per week). Prereq: perm.

ME **409 Human Factors in Engineering Design** (3 cr). Application of psychological principles to engineering and design; psychological models and principles from areas of perception, cognition, and information processing; the design process; display and control design; work station layout and system integration; environmental factors; safety; mental workload; human-computer interaction; and current research topics. Prereq: senior standing in an engineering discipline or perm.

ME **410 Production Engineering** (3 cr). Planning, analysis, and control of production systems; decision models; techniques for productivity enhancement; quality control. Prereq: senior standing in an engineering discipline or perm.

ME **412 Gas Dynamics** (3 cr). Compressible flow in ducts and nozzles, shock waves and expansion waves, and adiabatic two-dimensional compressible flow. Prereq: Math 310, Engr 320 and 335.

ME **J413/J513 Engineering Acoustics** (3 cr). ME 513 same as EE 579. Fundamentals of acoustics including wave theory; transmission through layers, generation and reception; low frequency models; application to sound measurement, transducers, loudspeaker cabinet design, and nondestructive testing; acoustic design project reqd. Additional projects/assignments reqd for grad cr. Prereq: ME 313, Engr 320 and 335.

ME **J420/J520 Fluid Dynamics** (3 cr). Same as CE J420/J520. Cr not granted for both ME 420 and ME 520. A second fluid dynamics course emphasizing theoretical perspective appropriate for either research or grad school preparation; topics include fluid properties, tensor analysis, kinematics, Navier-Stokes equation, energy equation, and vortex dynamics; study of current literature. Additional projects/assignments reqd for grad cr. Prereq: Engr 335, Math 310, or perm.

ME **422 Applied Thermodynamics** (3 cr). Advanced topics in applied thermodynamics including availability (exergy) analysis of systems, advanced power and refrigeration cycles, combustion, thermodynamic properties of real fluids, phase equilibrium, and chemical equilibrium. Prereq: Engr 320.

ME **424 Mechanical Systems Design I** (3 cr). Study of production realization process including project planning, concept design, detail design, and manufacturing processes; modern design and manufacturing practices in each of these areas applied to a two-semester, industrial sponsored capstone design project (continued in ME 426). Prereq: ME 301, 323, 324, 341, 345, Engr 335.

ME **425 Machine Component Design** (3 cr). Design of machine components in context of material selection, machineability, joining, materials strengthening and surface treatment; design using metals, non metals and composite materials for strength, fatigue, creep and corrosion resistance; other topics include lubrication theory, bearing selection, fasteners and spring design; discussion of case studies. Prereq: ME 261, 324, 341.

ME **426 Mechanical Systems Design II** (3 cr). Continuation of ME 424. Additional manufacturing issues; continuation of a two-semester, industrial sponsored capstone design project (begun in ME 424) to include the detail design, prototype construction, and testing. Prereq: AmSt 301, Econ 201, 202, or 272, ME 313, 330, 424, 425, 435.

ME **427 Computer Aided Design** (3 cr). CAD techniques, including finite element and optimum design, applications to mechanical structural and thermal systems with practical design constraints. Prereq: ME 341 or CE 342; coreq: ME 345, or CE 441 and 444, or perm.

ME **430 Senior Lab** (3 cr). Detailed lab investigation of engineering problem; statistical design of experiments; application of engineering principles to analyze experimental data; technical report writing; oral communication skills. One lec and four hrs of lab a wk. Prereq: ME 313, 330; coreq: Engl 317.

ME **431 Manufacturing Processes Lab** (3 cr). Study and measurement of manufacturing process variables; application of engineering principles to analyze experimental data. Prereq: ME 330; coreq: Engl 317.

ME **433 Combustion Engine Systems** (3 cr). Theory and characteristics of combustion engines; combustion process analysis; fuels, exhaust emissions and controls; system analysis and modeling. Coreq: ME 345 or perm.

ME **435 Thermal Energy Systems Design** (3 cr). Application of fluid mechanics, thermodynamics and heat transfer in the design of thermal energy systems; topics include thermal energy system component analysis and selection, component and system simulation, dynamic response of thermal systems, and system optimization. Prereq: Engr 335, ME 345.

ME **443** (s) **Analysis of Thermal Energy Systems** (3 cr, max arr). Analysis of thermal energy systems; topics vary depending on instructor and may include one or more of the following thermal systems: solar energy, refrigeration, vapor power generation, gas power generation, geothermal energy, wind energy, fuel cells, nuclear energy, thermoelectric systems, and thermionic systems. Prereq: Engr 335, ME 345; perm reqd to repeat course for credit.

ME **ID&WS444 Air Conditioning Engineering** (3 cr). WSU M E 419. Requirements for air conditioned spaces for human comfort; thermodynamic properties of air-water vapor mixtures; heating and cooling loads; design of systems for heating, cooling, and ventilation. Prereq: ME 345.

ME **J451/J551 Experimental Methods in Fluid Dynamics and Heat Transfer** (3 cr). Cr not granted for both ME 451 and ME 551. Theory and applications of transducers and instrumentation to measure velocity, temperature, and related quantities; flow visualization, pressure measurements, thermal anemometry, laser Doppler velocimetry, temperature and concentration measurement, and heat flux measurement. Additional projects/assignments reqd for grad cr. One 1-1/2 hr lec and one 3-hr lab a wk. Prereq: ME 330; coreq: Engl 317, ME 345, or perm.

ME **461 Fracture Mechanics** (3 cr). Fracture mechanics approach to structural integrity, fracture control, transition temperature, microstructural and environmental effects, fatigue and failure analysis. Prereq: ME 261, Engr 350.

ME **ID463 Mechanics of Materials Processing** (3 cr). WSU M E 453. Mechanics and energy balances in unit processes in materials manufacturing; processes include casting, rolling, extrusion and sheet forming; inelastic deformation applied to model some unit manufacturing processes; other processes explored as time and interest permit. Prereq: ME 341, 345.

ME **ID&WS472 Mechanical Vibrations** (3 cr). WSU M E 449. Free and forced vibration of single and multiple degree of freedom systems; response of mechanical systems to inputs of varying complexity, ranging from single frequency to pseudo-random; applications to mechanical design and vibration control. Prereq: Engr 220, Math 310, ME 313, or graduate standing.

ME **473 Experimental Stress Analysis** (3 cr). Measurement of static displacements, strains and stresses on deformable bodies; use of a universal test frame, extensometers, and strain gauges for quantitative static measurements, photoelasticity and brittle coating techniques for qualitative static measurements. Prereq: ME 341.

ME **J476/J576 Automation, Robotics, and Computer Integrated Manufacturing** (3 cr). Cr not granted for both ME 476 and ME 576. Comprehensive technical survey of important topics in production automation and related systems; flow line production, industrial robotics, material handling, group technology, flexible manufacturing systems, process control, and computer integrated manufacturing (CIM). Additional projects/assignments reqd for grad cr. Prereq: Math 310.

ME **J477/J577 Design for Manufacture and Assembly** (3 cr). Techniques to design for ease of production of components that form a product and the assembly of those components; techniques for design for other life-cycle issues such as design for service and design for the environment. Additional assignments reqd for grad cr. Coreq: ME 424 or equiv.

ME **ID&WS481 Control Systems** (3 cr). WSU M E 481. Analysis and design of feedback control systems utilizing frequency and time domain methods. Prereq: Engr 220, Math 310, and ME 313, or graduate standing.

ME **499** (s) **Directed Study** (cr arr). Selected topics. Detailed report reqd. Prereq: sr standing and perm.

ME **500 Master's Research and Thesis** (cr arr).

ME **502** (s) **Directed Study** (cr arr). Supervised study, including critical reading of current literature. Prereq: perm.

ME **503** (s) **Workshop** (cr arr). Prereq: perm.

ME **504** (s) **Special Topics** (cr arr). Prereq: perm.

ME **508 Mechanics of Plates and Shells** (3 cr). Formulation of governing equations, assumptions, stress analysis, calculation of displacements, discussion of experimental analysis, buckling and vitration of plates and shells. Prereq: ME 341 or CE 342.

ME **513 Engineering Acoustics** (3 cr). See ME J413/J513.

ME **515 Transport Phenomena** (3-4 cr). See ChE 515.

ME **WS516 Acoustics** (3 cr). WSU M E 548.

ME **519 Fluid Transients** (3 cr). See CE 519.

ME **520 Fluid Dynamics** (3 cr). See ME J420/J520.

ME **R525 Advanced Heat Transfer** (3 cr). See ChE 525.

ME **ID&WS526 Statistical Thermodynamics** (3 cr). WSU Ch E and M E 526. Probability theory and quantum mechanics, statistical mechanics, thermodynamic probability, molecular interpretation of first and second laws; kinetic theories. Prereq: Engr 320.

ME **ID&WS527 Thermodynamics** (3 cr). WSU M E 527. Thermodynamic laws for design and optimization of thermodynamic systems, equations of state, properties of ideal and real fluids and fluid mixtures, stability, phase equilibrium, chemical equilibrium, applications of thermodynamic principles. Prereq: Engr 320 or perm.

ME **529 Combustion and Air Pollution** (3 cr). Formation of pollutants during combustion processes and their subsequent transformations in the atmosphere; emphasis on the effects of design and operating parameters of combustion devices on the nature and composition of exhaust gases, improvements, post-combustion treatment of effluent gases, atmospheric chemistry, transport of pollutants, smog formation, acid rain, ozone formation and destruction. Prereq: Engr 320 and 335, ME 345 or perm.

ME **ID&WS534 Mechanics of Composite Materials** (3 cr). WSU M E 534. Analysis of micromechanical and macromechanical behavior of composite materials with emphasis on fiber-reinforced composite; prediction of properties; stiffness and strength theories; laminated beams and plates; dynamic behavior; environmental effects. Prereq: ME 341 or CE 342.

ME **535 Failure of Structural Materials** (3 cr). See Met 535.

ME **539 Advanced Mechanics of Materials** (3 cr). Same as CE 510. Limitations of results of elementary mechanics of materials, complex situations of loading and structural geometry, applications to design of machines and structure, introduction to elasticity. Prereq: ME 341 or CE 342.

ME **540 Continuum Mechanics** (3 cr). Same as CE 540. Stress and deformation of continua using tensor analysis; relationship between stress, strain, and strain rates in fluids and solids; applications. Prereq: perm.

ME **541 Mechanical Engineering Analysis** (3 cr). Mathematical modeling and solutions to mechanical engineering problems; analytical solutions to linear heat and mass diffusion, waves and vibrations; introduction to approximate techniques. Prereq: ME 345, ME 341 or equiv.

ME **WS542 Optimal Control of Dynamic Systems** (3 cr). WSU M E 542.

ME **544 Conduction Heat Transfer** (3 cr). Formulation of steady-state and transient one- and multi-dimensional heat conduction problems; analytical solution techniques for linear problems including separation of variables, integral transforms, and Laplace transforms. Prereq: ME 345 or equiv or perm.

ME **545 Numerical Conduction Heat Transfer** (3 cr). Steady-state and transient conduction and advection of heat; analytical and numerical methods including finite differences, finite elements, and boundary elements. Prereq: ME 345.

ME **ID&WS546 Convective Heat Transfer** (3 cr). WSU M E 515. Energy conservation equations; laminar and turbulent forced convective heat transfer; internal and external flow; free convection. Prereq: ME 345 or perm.

ME **ID&WS547 Thermal Radiation Processes** (3 cr). WSU M E 514. Thermal radiation; radiation interchange among surfaces; radiation in absorbing-emitting gases; combined modes of heat transfer. Prereq: ME 345 or perm.

ME **548 Elasticity** (3 cr). Same as CE 548. Mathematical analysis of strain and stress, including vectors, tensors, and coordinate transformations; equations of elasticity; stress problems involving extension, torsion, and flexure; theories of failure. Prereq: ME 341 or CE 342.

ME **549 Finite Element Analysis** (3 cr). See CE 546.

ME **551 Experimental Methods in Fluid Dynamics and Heat Transfer** (3 cr). See ME J451/J551.

ME **WS556 Numerical Modeling in Fluid Mechanics** (3 cr). WSU M E 556.

ME **557 Advanced Fluid Dynamics** (3 cr). Potential flow and boundary layer theory, plus one or more advanced topics. Prereq: ME J420/J520 or 540 or perm.

ME **ID&WS572 Advanced Vibrations** (3 cr). WSU M E 541. Same as EE 575. Free and forced vibration of strings, membranes and plates; response to random inputs; advanced topics in spectral analysis to include statistical properties, windowing, and the zoom transforms; analysis of nonlinear systems including linearization, local and global stability, perturbation methods, and numerical simulation; introduction to chaos theory. Prereq: ME 472 or EE 470 or perm.

ME **WS574 Advances in Manufacturing Science** (3 cr). WSU M E 574.

ME **575 Optimal Control Theory** (3 cr). See EE 574.

ME **576 Automation, Robotics, and Computer Integrated Manufacturing** (3 cr). See ME J476/J576.

ME **577 Design for Manufacture and Assembly** (3 cr). See ME J477/J577.

ME **578 Neural Network Design** (3 cr). See EE 578.

ME **580 Linear System Theory** (3 cr). See EE 572.

ME **ID&WS581 Fuzzy Logic Control Systems** (3 cr). Same as EE 573. Introduction to fuzzy logic control systems and the methods used to design these systems. Prereq: ME 481 or EE 470 or perm.

ME **582** (s) **Advanced Topics in Control Systems** (3 cr). See EE 577.

ME **583 Reliability of Engineering Systems** (3 cr). See CE 541.

ME **585 Advanced Topics in Engineering Design** (3 cr). Introduction to advanced methodologies for the design and manufacture of products; topics include robust design, conrecurrent engineering, design for manufacture and assembly, and expert systems. Prereq: ME 424, Stat 301, or grad standing and perm.

ME **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

ME **600 Doctoral Research and Dissertation** (cr arr).

Medical Science

Michael B. Laskowski, Director, WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Medical Education Program (304 Student Health Services Bldg. 83844-4207; phone 208/885-6696; e-mail brendah@uidaho.edu).

Note: Ordinarily, only students enrolled at the University of Washington School of Medicine register to take medical science courses. Matriculated graduate and senior undergraduate students may register for credit in certain medical science courses under appropriate circumstances. In such cases prior approval must be obtained from the faculty member chairing the course and the WWAMI director. Permission to register will usually depend on the student also having approval from his or her academic adviser (senior undergraduate students must also obtain approval from the vice provost for research and graduate studies) and be limited to not more than two medical science courses per semester. MedS 505 (Preceptorship) and MedS 513, 522, and 535 (Introduction to Clinical Medicine I, II, and III) are closed to all but WWAMI medical students.

MedS **501** (s) **Seminar** (cr arr).

MedS **502** (s) **Directed Study** (cr arr). Areas normally offered are directed dissection of the extremities, trunk, head, neck, abdomen, and pelvis; endocrinology, physiology, and other medically related studies.

MedS **504** (s) **Special Topics** (cr arr).

MedS **505 Preceptorship** (cr arr). To provide opportunity for first-year medical students to gain personal experience with and insight into medical practice situations; the student will be stationed with physicians in their offices in accordance with the student's preference of discipline at the WWAMI sites.

MedS **ID&WS510 Histology** (3 cr). WSU Med S 510. Microscopy of cells; tissues and organs of the human body; emphasis on function. Three lec and one 3-hr lab a wk.

MedS **ID&WS511 Anatomy of the Trunk** (5 cr). WSU Med S 511. Regional study of anatomy of human thorax, abdomen, pelvis, and perineum in correlation with clinical cases. Two lec and one 3-hr lab a wk.

MedS **ID&WS512 Basic Mechanisms in Cellular Physiology** (4 cr). WSU Med S 512. Basic physiological mechanisms, primarily at the cellular level.

MedS **ID&WS513 Introduction to Clinical Medicine I** (1 cr). WSU Med S 513. Communication skills and interview techniques to form the basis for the eventual doctor-patient relationship.

MedS **ID&WS514 Molecular and Cellular Biology I** (3 cr). WSU Med S 514. Classical molecular and cellular biochemistry, cellular physiology, and molecular genetics.

MedS **ID&WS516 Systems of Human Behavior** (2 cr). WSU Med S 516. Conceptual systems and models of behavior, normality and abnormality, environment and social learning, conditioning, learning in the autonomic nervous systems, catecholamines and behavior, illness behavior, feelings, emotion and cognition, physician-patient interaction, diseases and techniques of behavior change; human development from birth to senescence emphasizing disorders that occur during various life phases.

MedS **ID&WS520 Cell and Tissue Response to Injury** (4 cr). WSU Med S 520. Cell and tissue injury, inflammation, and neoplasia.

MedS **ID&WS521 Natural History of Infectious Diseases and Chemotherapy** (5 cr). WSU Med S 521. Pathogenesis, resistance, epidemiology, clinical manifestations and control of bacterial, fungal, parasitic, and viral infectious diseases, principles of chemotherapy and asepsis; sterilization; nosocomial and iatrogenic infections and prevention.

MedS **ID&WS522 Introduction to Clinical Medicine II** (2 cr). WSU Med S 522. Continuation of communication skills especially as related to and dealing with medical history.

MedS **ID&WS523 Medical Immunology** (2 cr). WSU Med S 523. Principles of immunology and their relationship to human medicine.

MedS **ID&WS524 Molecular and Cellular Biology II** (2 cr). WSU Med S 524. Continuation of MedS 514.

MedS **ID&WS526 Systems of Human Behavior** (2 cr). WSU Med S 526. See MedS ID&WS516 for description.

MedS **ID&WS530 Epidemiology** (2 cr). WSU Med S 530. Intro to biostatistical inference; interaction of agent, host, and environment in disease causation and transmission.

MedS **ID&WS531 Head, Neck, Ear, Nose, and Throat** (5 cr). WSU Med S 531. Gross anatomy, including skull, pharynx, and larynx; audition and balance.

MedS **ID&WS532 Nervous System** (5 cr). WSU Med S 532. Normal structure and function of the nervous system, including the eye.

MedS **ID&WS535 Introduction to Clinical Medicine III** (2 cr). WSU Med S 535. Screening physical exam.

Metallurgical Engineering

Patrick R. Taylor, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).

Met **101 Introduction to Metallurgy and Materials Science** (1 cr). Earth resources, metallurgy, materials science, and manufacturing.

Met **200** (s) **Seminar** (cr arr). Prereq: perm.

Met **201 Elements of Materials Science** (3 cr). Same as ME 261. Principles relating properties of metals, ceramics, polymers, and composites to their structures. Prereq: Chem 111.

Met **202 Microstructural Evaluation** (2 cr). Techniques for preparing materials for observation and evaluation of microstructure by optical and scanning and transmission electron microscopy. One 2-hr and one 3-hr lab a wk. Coreq: ME 261.

Met **204** (s) **Special Topics** (cr arr). Prereq: perm.

Met **205 Introduction to Metallurgy** (3 cr). Mineral processing, hydrometallurgy, pyrometallurgy, and electrometallurgy; principles of materials science; structures, properties, and processes; phase diagrams and welding. Two lec and 1 hr of lab demonstration a wk; extra lab time reqd as assigned. Prereq: Math 175, Chem 112 or 113, CS 112 or equiv; coreq: Engr 210.

Met **211 Metallurgical Mass and Energy Balance** (3 cr). Dimensions, units, and conversion factors; stoichiometry; sampling and measurements; thermochemistry; calculations of material and energy balances applied to particular processes in ferrous and nonferrous metallurgy.

Met **299** (s) **Directed Study** (cr arr). Prereq: perm.

Met **308 Metallurgical Thermodynamics** (3 cr). Intro; first, second, and third law; auxiliary functions; behavior of solutions; free energy composition and phase diagrams of binary systems; reaction equilibria in systems containing components in condensed solutions; ternary diagrams; thermodynamics of alloys and ceramic materials. Prereq: Chem 112 or 113, Math 310.

Met **ID309 Metallurgical Transport Phenomena** (3 cr). WSU MSE 309. Intro to principles of metallurgical transport phenomena including heat, mass, and momentum transfer. Coreq: Math 310.

Met **310 Metallurgical Reactor Design** (3 cr). Fundamental principles. Prereq: Math 310.

Met **313 Physical Metallurgy I** (4 cr). Theory, structure, and properties of materials. Prereq: ME 261.

Met **316 Physical Metallurgy II** (3 cr). Continuation of Met 313, with emphasis on transformations in materials. Prereq: Met 313.

Met **ID341 Particulate Materials Processing** (4 cr). WSU MSE 341. Engineering science of particulates; powder production, powder properties, separation; design of systems applied to metals, ores, and concentrates. Three lec and one hr of lab a wk; two 1-day field trips. Prereq: Chem 112 or 113, Engr 210, CS 112, Met 211, ME 261; coreq: Math 310.

Met **344 Hydroprocessing of Materials** (4 cr). Intro to hydroprocessing; dissolution of metals, minerals, and materials; recovery of metals from solutions: solvent extraction, ion exchange, precipitation; electrometallurgy; bioprocessing; design of agitators, mixer-settlers, electrolytic cells; flowsheet design and analysis. Three lec and one 3-hr lab a wk. Prereq: Met 308, 211, 309.

Met **400** (s) **Seminar** (cr arr). Review of current literature. One 3-day field trip. Prereq: perm.

Met **404** (s) **Special Topics** (cr arr). Prereq: perm.

Met **405 Industrial Minerals Processing and Design** (3 cr). Equipment description, selection, and use in flowsheet design; includes crushing, grinding, screening, washing, and other classifying operations; also includes flowsheet design for industrial minerals such as sand and gravel, aggregate, limestone, and others. Prereq: Min 103, 405.

Met **406 Treatment Technology for Recycled Waste** (3 cr). Basic principles needed by technologies for treatment of recycled wastes; examination of various unit operations; numerical examples extensively used in design of particular operational units; some demonstrations in state of the art laboratories. Prereq: Open for seniors in engineering and applied sciences and graduate students.

Met **ID407 Materials Fabrication** (3 cr). WSU MSE 407. Fundamentals of casting, solidification, metal working, and joining of metallic materials; emphasis on interaction between processing, properties, and structure; final problem that covers design of procedure for fabrication of industrial application. One 1-day field trip.

Met **J409/J509 Solution Mining** (3 cr). Same as Min J409/J509. Metal extraction from rubblized rock: chemistry, biology, transport, leaching kinetics, solution flow, aeration, rock permeability and alteration, leaching simulation, environmental containment, safety, metal recovery from solutions; well and reservoir technology; brine evaporation and extraction. Term paper or other additional assignments/projects reqd for grad cr. Prereq: Chem 111. (Alt/yrs)

Met **J410/J510 Plasma Processing of Materials** (3 cr). Fundamentals of thermal plasma processing of materials; examples of current and future industrial applications. Additional projects/assignments reqd for grad cr. Prereq: senior standing or graduate student.

Met **412 Mechanical Metallurgy** (3 cr). Mechanical properties of solids, testing, brittle and ductile fracture, plasticity, mechanical processes in metallurgy. One 1-day field trip. Prereq: Met 201 or ME 261.

Met **414 Process Design** (3 cr). Problem definition, flowsheet synthesis, equipment design, economic analysis, optimization and reporting; heuristic and open-ended design problems based on prior minerals, materials, and extractive process courses, economics, and basic and engineering science. Prereq: Min 352; Met 308, 309, 310, 341, 344, 442.

Met **ID415 Materials Selection and Design** (3 cr). WSU MSE 415. Selection of materials for use in structural applications; consideration of environment, stress conditions, cost, and performance as guide to properties; optimization of choice of materials and fabrication methods; open-ended problems of real applications in various industries. Prereq: Met 316, 407.

Met **J416/J516 Magnetic Materials** (3 cr). Study of paramagnetic, superparamagnetic, diamagnetic, ferrimagnetic, ferromagnetic, antiferromagnetic, magnetic anistropy, magnetostriction and the effect of stress, magnetic domain and magnetization process, induced magnetic anisotropy, magnetic fine particles, magnetic thin film, magnetization dynamics, hard magnet, soft magnet, magnetic recording, magnetic head, magnetic media, magneto-optical recording. Additional projects/assignments reqd for grad cr. Prereq: senior standing, graduate student, or perm.

Met **417 Instrumental Analysis** (3 cr). Principles and laboratory experiments in x-ray diffraction, scanning electron microscopy, transmission electron microscopy, aqueous analytical techniques, etc. Two lec and one 3-hr lab a wk. Prereq: junior or senior standing.

Met **J419/J519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Met **ID-J421/J521 Light Metals** (3 cr). WSU MSE 421. Principles behind the physical metallurgy of the light metals Al, Mg, Ti, Be; discussion of characteristics and applications of alloys based on these metals. Additional projects/assignments reqd for grad cr. Prereq: Met 313, 316.

Met **J423/J523 High Temperature Corrosion** (3 cr). Oxidation of metals, semiconductors and ceramics, protective oxide scales and coatings, defect structures and diffusion oxides, kinetics and thermal fatigue, transport properties. Additional projects/assignments reqd for grad cr. Prereq: perm. (Alt/yrs)

Met **424 Phase Transformations** (3 cr). Thermodynamics and phase diagrams, diffusion, solidification, diffusional transformation, diffusionless transformations.

Met **J425/J525 Electronic Materials** (3 cr). The chemistry, physics, and materials science relating to fabrication and processing steps; materials properties and device properties; structures of electronic materials; electronic energy band; electrical properties of semiconductors; optical properties; interface; thermodynamics of compound semiconductors; semiconductor devices; optoelectronic devices; single crystal growth; amorphous silicon; control of semiconductor conductivity; dielectric materials; piezoelectronic materials; superconducting materials. Additional projects/assignments reqd for grad cr. Prereq: senior standing, graduate student, or perm.

Met **J427/J527 Advanced Ceramics** (3 cr). Crystallography, ceramic crystal structures, phase diagrams, phase transformation; mechanical properties, thermal properties, electrical properties, magnetic properties and optical properties. Additional projects/assignments reqd for grad cr. Prereq: perm.

Met **ID-J429/J529 Melting, Casting, and Powder Metallurgy** (3 cr). WSU MSE 429. Principles behind a number of commercially important and developing synthesis technologies such as conventional powder metallurgy, rapid solidification, mechanical alloying, plasma processing, vapor deposition, and thermochemical processing. Additional projects/assignments reqd for grad cr. Prereq: Met 313, 316.

Met **442 Pyroprocessing of Materials** (4 cr). History of pyroprocessing; hydroprocessing versus pyroprocessing; thermodynamic principles; roasting; sintering; smelting of non-ferrous materials; smelting of ferrous materials; furnaces; flowsheet design and analysis; pyroprocessing of ceramic materials. Three lec and one 3-hr lab a wk. Prereq: Met 211, 308, 309.

Met **ID461 Metallurgical Control and Optimization** (3 cr). WSU Math and MSE 461. Basics of process control and optimization applied to metallurgical engineering.

Met **480 Transmission Electron Microscopy of Materials** (3 cr). Basic principles and applications of transmission electron microscopy as applied to materials; topics include formation and interpretation of electron diffraction patterns and images; kinematic and dynamical theories of contrast; interpretation of electron micrographs from crystals containing point defects, dislocations, stacking faults and precipitates; high-resolution and high-voltage electron microscopy techniques.

Met **499** (s) **Directed Study** (cr arr). Prereq: perm.

Met **500 Master's Research and Thesis** (cr arr).

Met **501** (s) **Seminar** (cr arr). Prereq: perm.

Met **502** (s) **Directed Study** (cr arr). Prereq: perm.

Met **504** (s) **Special Topics** (cr arr). Prereq: perm.

Met **505 Advanced Rate Phenomena in Metallurgical Engineering** (3 cr). Principles of rate phenomena in metallurgical engineering. Prereq: perm.

Met **506 Advanced Ore Dressing** (3 cr). Theories of comminution; flotation and related surface phenomena; electrical and magnetic concentration; process control. Prereq: Met 341 or perm.

Met **508 Control of Metallurgical Processes** (3 cr). Control variables of metallurgical processes. Prereq: perm.

Met **509 Solution Mining** (3 cr). See Met J409/J509.

Met **510 Plasma Processing of Materials** (3 cr). See Met J410/J510.

Met **511 Advanced Physical Metallurgy** (3 cr). Theory of metals and alloys; application to problems of structure; properties of engineering metals. Prereq: perm. (Alt/yrs)

Met **514 Phase Rule and Phase Relations** (3 cr). Phase rule construction and interpretation of phase diagrams; metastable and unstable phase relations. Prereq: perm. (Alt/yrs)

Met **516 Magnetic Materials** (3 cr). See Met J416/J516.

Met **517 Kinetics of Metallurgical Reactions** (3 cr). Application of absolute rate theory; time and temperature dependence; kinetics of gas-solid reactions; corrosion, diffusion, and recrystallization. Prereq: perm. (Alt/yrs)

Met **518 Advanced Mechanical Metallurgy** (3 cr). Micro- and macroscopic theories of deformation; materials-forming processes; mechanical tests. Prereq: perm. (Alt/yrs)

Met **519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Met **521 Light Metals** (3 cr). See Met J421/J521.

Met **523 High Temperature Corrosion** (3 cr). See Met J423/J523.

Met **525 Electronic Materials** (3 cr). See Met J425/J525.

Met **527 Advanced Ceramics** (3 cr). See Met J427/J527.

Met **528 Advanced Engineering Ceramics** (3 cr). Advanced materials: zirconia, alumina, silicon carbide, silicon nitride, glass ceramics, ceramic matrix composites, other miscellaneous non-oxides; advanced processing techniques: injection molding, combustion synthesis, hot isostatic pressing, superplastic forming, shock synthesis, plasma processing. Prereq: Met 527 or perm.

Met **529 Advanced Synthesis of Materials** (3 cr). See Met J429/J529.

Met **533 Advanced X-ray Diffraction** (3 cr). Principles and applications to advanced problems. Prereq: perm.

Met **R534 Radiation Effects in Materials** (3 cr). Interactions between radiation and solids. Prereq: perm.

Met **R535 Failure of Structural Materials** (3 cr). Same as ME 535. Mechanisms by which failure can occur in structural materials. Prereq: ME 261 or Met 201, Engr 350.

Met **R538 Corrosion in Metallurgy** (3 cr). Corrosion by aqueous media, gases, liquid metals, and fused salts. Prereq: physical chemistry, incl electrochemistry, or perm.

Met **597** (s) **Practicum** (cr arr). Prereq: perm.

Met **598** (s) **Internship** (cr arr). Prereq: perm.

Met **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Microbiology, Molecular Biology and Biochemistry

Gregory A. Bohach, Head, Dept. of Microbiology, Molecular Biology and Biochemistry (142 Life Sc. Bldg. 83844-3052; phone 208/885-7966).

MMBB **105 Survey of Biotechnology** (1 cr). Descriptions and discussions of research and career opportunities in biotechnology; genetic engineering concepts; pharmaceutical, environmental, plant and animal systems.

MMBB **111 Microbial Genetics** (3 cr). Principles of microbial genetics and their application to model biological systems, including fruit flies, maize, and humans; dominance and epistasis, complementation and recombination, mutation and mutagenesis, reversion and suppression, fate determination and development. Prereq or coreq: Chem 111.

MMBB **154 Introductory Biology of Bacteria and Viruses** (3 cr) (C). May be used as core credit in J-3-b when taken with MMBB 155. May be taken by microbiology majors, but carries no cr after MMBB 250. Introduction to microorganisms and their role in disease, health, foods, and the environment; current topics in microbiology.

MMBB **155 Introductory Biology of Bacteria and Viruses Laboratory** (1 cr). May be used as core credit in J-3-b when taken with MMBB 154. May be taken by microbiology majors but carries no credit after MMBB 250. Introductory laboratory training in basic microbiology; includes sterile technique, bacterial enumeration methods, culturing techniques, yogurt preparation and analysis, recombinant DNA techniques. Three hrs of lab a wk. Coreq: MMBB 154.

MMBB **206** (s) **Study Abroad** (cr arr) . Prereq: perm of dept.

MMBB **250 General Microbiology** (5 cr). Intro to nature and activity of bacteria and other microorganisms; their importance in all life systems. Three hrs of lec and two 2-hr labs a wk. Prereq: Chem 101 or 111.

MMBB **300 Survey of Biochemistry** (3 cr). Carries no credit after MMBB 380. Survey of structure, function, and metabolism of major constituents of living systems. Prereq: Chem 101 or 111; coreq: Chem 275.

MMBB **ID380 Introductory Biochemistry** (4 cr). WSU BC/BP 364. Carries one credit after MMBB 300. Introduction to the structure, function, and metabolism of major constituents of living systems. Three hrs lec and one hr with interactive problem solving. Prereq: Chem 101 or 111, and 277; coreq: Chem 253. Recommended preparation: Chem 372.

MMBB **ID382 Introductory Biochemistry Laboratory** (1 cr). WSU BC/BP 366. Lab training in modern methods. One 3-hr lab and one 1-hr recitation a wk. Prereq: Chem 101 or 111, and 278; prereq or coreq: MMBB 380 or equiv.

MMBB **398** (s) **Internship** (1-3 cr, max 3). Supervised internship in professional, non-University of Idaho settings, integrating academic study with work experience in the fields of microbiology, molecular biology or biochemistry; requires formal written plan of activities to be approved by academic adviser and departmental head before engaging in the work; a final report will be evaluated by on-campus faculty. Graded P/F. Prereq: perm.

MMBB **400** (s) **Seminar** (cr arr). Graded P/F. Prereq: perm.

MMBB **401 Undergraduate Research** (1-2 cr, max 4). Individual study. Prereq: sr standing and perm.

MMBB **404** (s) **Special Topics** (cr arr). Prereq: perm.

MMBB **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

MMBB **J409/J509 Immunology** (3 cr). Theory and mechanisms of the cellular basis of immune response; antibody structure, function, and synthesis; cell-mediated immunity; complement; hypersensitivity; immunologic diseases; transplantation; tumor immunity. Extra oral and/or written assignments reqd for grad cr. Coreq: MMBB 380. (Alt/yrs)

MMBB **J412/J513 Pathogenic Microbiology** (3 cr). Epidemiology, host-parasite relationships, pathology, host response; treatment, prevention, and control of pathogenic microorganisms. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250. (Alt/yrs)

MMBB **WS414 General Virology** (3 cr). WSU Micro 414.

MMBB **WS415 General Virology Laboratory** (2 cr). WSU Micro 415.

MMBB **ID416 Food Microbiology** (2 cr). WSU FSHN and Micro 416. Same as FST ID416. Purpose for enumeration, detection, and identification of microorganisms in food products; physical, chemical, and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Prereq: MMBB 154 or 250.

MMBB **ID417 Food Microbiology Laboratory** (2 cr). WSU FSHN and Micro 417. Same as FST ID417. Methods for enumeration, detection, and identification of spoilage and pathogenic microorganisms in foods. Two 3-hr labs a wk. Prereq or coreq: MMBB 416 or FST 416.

MMBB **WS420 Epidemiology** (3 cr). WSU Micro 420.

MMBB **J425/J525 Microbial Ecology** (3 cr). Same as Soil J425/J525. Biogeochemical activities and relationships of microorganisms in soil, water, plants, and animals. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250, Math 137 or 143, or perm.

MMBB **440 Advanced Laboratory Techniques** (4 cr). Intensive hypothesis-driven laboratory course that will prepare the student for research in molecular biology; emphasis on areas of microbial physiology, microbial genetics, immunology, and pathogenic microbiology. Prereq: MMBB 250.

MMBB **J450/J550 Molecular Mechanisms in Microbiology** (2 cr). In-depth discussion of molecular mechanisms and different experimental approaches in microbiology. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250; coreq: MMBB 380.

MMBB **J460/J555 Microbial Physiology** (3 cr). Concepts of microbial growth, metabolism, regulation, variation, structural-functional relationships. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 250. (Alt/yrs)

MMBB **ID-J468/ID-J568 Microbial Transformations** (3 cr). WSU Micro 568. Use of microbes in the biodegradation of wastes and bioprocessing to produce valuable chemical stocks. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380, J460/J555.

MMBB **J475/J575 Molecular Biology of Cells** (3 cr). Introduction to the organization and function of the major components of the eukaryotic cell; emphasis on the composition of cells, the structures and assembly processes of molecules that make up cells, diversity of cell types found in multicellular organisms, and how common interacting processes are coordinately controlled; understanding concepts that bridge biochemistry, molecular biology, and basic physiology. Extra oral and/or written assignments reqd for grad cr. Prereq: Biol 201 and either MMBB 300 or 380.

MMBB **480 Biochemistry and Molecular Biology** (3 cr). Metabolism, molecular physiology, and molecular biology. Prereq: MMBB 380.

MMBB **J485/J585 Prokaryotic Molecular Biology** (3 cr). Current theory and experimental basis for prokaryotic DNA, RNA, and protein synthesis, gene regulation and cell wall metabolism. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380; prereq or coreq: MMBB 480.

MMBB **J486/J586 Plant Biochemistry** (3 cr). MMBB 486 same as Chem 486. Biochemistry of higher plants with an emphasis on physiology and molecular biology. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380. (Alt/yrs)

MMBB **J487/J587 Eukaryotic Molecular Genetics** (3 cr). Molecular basis of genetics of eukaryotes. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 541 and MMBB J485/J585 or Biol 351, MMBB 480 and J488/J588.

MMBB **J488/J588 Genetic Engineering** (3 cr). Techniques and theory underlying practical genetic modifications of plants, microbes, and animals. Extra oral and/or written assignments reqd for grad cr. Prereq: MMBB 380, Gene 314.

MMBB **490 Senior Thesis and Research** (2 cr, max 4). Problem solving using a combination of laboratory and/or library skills. Prereq: senior standing.

MMBB **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

MMBB **498** (s) **Internship** (1-3 cr, max 3). See MMBB 398 for description. Graded P/F. Prereq: perm.

MMBB **499** (s) **Directed Study** (cr arr). Prereq: perm.

MMBB **500 Master's Research and Thesis** (cr arr).

MMBB **501** (s) **Seminar** (1 cr, max 6). A maximum of 2 cr may be counted toward an M.S. degree and a maximum of 4 cr toward a Ph.D. Graded P/F. Prereq: perm.

MMBB **502** (s) **Directed Study** (cr arr). Areas normally offered are: molecular biology, microbiology and biochemistry. Prereq: perm.

MMBB **504** (s) **Special Topics** (cr arr). Prereq: perm.

MMBB **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

MMBB **509 Immunology** (3 cr). See MMBB J409/J509.

MMBB **WS512 Immunology** (4 cr). WSU Micro 512.

MMBB **513 Pathogenic Microbiology** (3 cr). See MMBB J412/J513.

MMBB **520 Instrumental Analysis** (2 cr). Theory and techniques involved in the use of various instruments in modern biological laboratories; topics include chromatography, spectrometry, sterilization, sample preparation, radioisotope techniques, electrophoresis, centrifugation, and fermentation. Prereq: perm.

MMBB **525 Microbial Ecology** (3 cr). See MMBB J425/J525.

MMBB **WS529 Molecular Techniques in Microbiology** (3 cr). WSU Micro 529.

MMBB **ID537 Soil Biochemistry** (3 cr). WSU SoilS 537. See Soil 537.

MMBB **ID&WS541-ID&WS542 Biochemistry** (3 cr). Same as Chem 541-542. WSU BC/BP 563-564 and V Ph 541-542. Max 7 cr in any combination of MMBB 380, 480, 541, and 542. Intermediate biochemistry; intro to metabolism and the chemical and physical properties of biomolecules. Prereq: Chem 372; coreq: Chem 302 or 306 or perm.

MMBB **550 Molecular Mechanisms in Microbiology** (2 cr). See MMBB J450/J550.

MMBB **555 Microbial Physiology** (3 cr). See MMBB J460/J555.

MMBB **560 Advanced Microbial Physiology** (3 cr). Use of current literature to study recent advances in research on the physiology of microorganisms. Prereq: MMBB J460/J555 or perm.

MMBB **564 Developmental Genetics** (1-4 cr, max 8). Molecular basis of cell differentiation and morphogenesis of three-dimensional structures in bacteria, fungi, plants, and animals. Prereq: MMBB J485/J585 and J487/J587 or perm.

MMBB **WS565-WS566 Molecular Biology I-II** (3 cr). WSU BC/BP and GenCB 565-566.

MMBB **ID568 Microbial Transformations** (3 cr). See MMBB J468/J568.

MMBB **569 Techniques in Microbial Genetics** (3 cr). See MMBB J469/J569.

MMBB **575 Molecular Biology of Cells** (3 cr). See MMBB J475/J575.

MMBB **WS578 Molecular Biology Computer Techniques** (4 cr). WSU BC/BP 578.

MMBB **582 Proteins and Enzymes** (3 cr). Same as Chem 582. Protein structure and function; mechanisms of enzyme action. Prereq: MMBB 541. (Alt/yrs)

MMBB **585 Prokaryotic Molecular Genetics** (3 cr). See MMBB J485/J585.

MMBB **586 Plant Biochemistry** (3 cr). See MMBB J486/J586.

MMBB **587 Eukaryotic Molecular Genetics** (3 cr). See MMBB J487/J587.

MMBB **588 Genetic Engineering** (3 cr). See MMBB J488/J588.

MMBB **589 Advanced Topics in Molecular Biology, Microbiology and Biochemistry** (1-9 cr, max 9). Same as Chem 589. Recent research in enzymes, hormones, complex lipids, vitamins, nucleic acids, antibiotics, viruses, and MMBB genetics. Prereq: perm.

MMBB **597** (s) **Practicum** (cr arr). Prereq: perm.

MMBB **598** (s) **Internship** (1-3 cr, max 3). See MMBB 398 for description. Graded P/F. Prereq: perm.

MMBB **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

MMBB **600 Doctoral Research and Dissertation** (cr arr).

Military Science

Lloyd E. Mues, Head, Dept. of Military Science (West End, Mem. Gym. 83844-2424; phone 208-885-6528).

MS **101 Introduction to Military Science** (1 cr). Introduction to mission and organization of the U.S. Army; provides background in role of an Army officer as a career choice in either the Active Army or the National Guard/Reserves; lec, conference, and activities dealing with military subjects; option of participating in challenging outdoor activities such as whitewater rafting, mountaineering, and rifle marksmanship; texts and lab fees provided by dept; no mandatory uniform wear; students also learn about available two- and three-year scholarships and other financial programs for which they may be eligible. Coreq: MS 111. Participation entails no military obligation.

MS **102 Fundamentals of Leadership and Management** (1 cr). Continuation of MS 101. Development of greater understanding of roles and responsibilities of Army officers; lec, conference, and activities dealing with military subjects; participation in challenging outdoor activities such as orienteering, mountaineering, and weapons qualification; occasional uniform wear reqd; texts, uniforms, and lab fees provided by dept. Coreq: MS 112. Participation entails no military obligation.

MS **111-112 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 101-102.

MS **201 Applied Leadership and Management** (2 cr). Application of leadership and management skills to various case studies; organization and structure of Army units; basic first aid; practical field training in variety of outdoor skills (mountaineering, rafting, rifle marksmanship); uniform wear reqd; texts, uniforms, and lab fees provided by dept. Prereq: MS 102 or perm of dept; coreq: MS 211. Participation entails no military obligation.

MS **202 Applied Leadership and Management** (2 cr). Troop leading procedures and application of procedures to planning and conducting small unit operations; individual soldier skills, such as military communication, basic map reading, and survival skills; practical field training in variety of outdoor skills (mountaineering, rafting, rifle marksmanship); uniform wear reqd; texts, uniforms, and lab fees provided by dept. Prereq: MS 201 or perm of dept; coreq: MS 212. Participation entails no military obligation.

MS **204** (s) **Special Topics** (cr arr). Prereq: perm.

MS **211-212 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 201-202.

MS **280 Raider Operations** (1 cr, max 4). The Chrisman Raider Team is an elite group of individuals who compete on intercollegiate level in military skills of marksmanship, physical fitness, navigation, weapons, rope bridging, and long distance marching; rigorous physical training and practicing technical skills in preparation for two-day competition among schools throughout western U.S. Coreq: MS 101 or 102 or 201 or 202 or 301 or 302 or 401 or 402

MS **289 Basic Encampment** (6 cr). Intensive five-week summer encampment at Fort Knox, Kentucky; hands-on training in fundamentals of leadership in a military environment, land navigation, weapons training, drill and ceremony, and basic skills in doctrinal tactics employed by light infantry leaders. Prereq: 50 cr hrs, 2.0 GPA, and perm of dept head.

MS **290 Color Guard/Drill Team** (1 cr, max 4). Participation and training in color guard and drill team. Coreq: MS 101 or 102 or 201 or 202 or 301 or 302 or 401 or 402.

MS **299** (s) **Directed Study** (cr arr). Prereq: perm.

MS **301-302 Advanced Leadership and Management** (3 cr). Practical leadership skills in a light infantry environment; leadership techniques practiced while learning patrolling and offensive and defensive tactics at squad and platoon level; prepares cadets for five-wk Advanced Camp at Fort Lewis, Washington. Three hrs of lec, 2 hrs of lab, and 3 hrs of physical training a wk, plus field training exercises. Prereq: either ROTC Basic Course, Camp Challenge, or Basic Training from any U.S. military branch of service; coreq: MS 311, 312.

MS **311-312 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 301-302.

MS **401-402 Seminar in Leadership and Management** (3 cr). Practical application of leadership and management skills, military justice system, administrative and logistical procedures; preparation for service as an Army lieutenant. Prereq: MS 301-302; coreq: MS 411-412, 471-472.

MS **411-412 Leadership Lab** (1 cr). Building fundamental characteristics of leadership using a military model; hands-on training in small group leadership. Two hrs of lab every other wk. Coreq: MS 401-402.

MS **471-472 Command and Staff Functions** (2 cr). Hands-on practical applications of functions of U.S. Army officers assigned to command and staff positions; planning, coordinating, and implementing operations, training and logistic support for cadet battalion activities; practical exercises in interrelationships between commander, staff, higher headquarters, and subordinate units. Coreq: MS 401-402.

MS **489 Advanced Encampment** (cr arr). Intensive five-wk summer encampment at Ft. Lewis, Washington. Graded P/F. Prereq: MS 301-302 and perm of dept.

MS **499** (s) **Directed Study** (cr arr). Prereq: perm.

Mining Engineering

Patrick R. Taylor, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).

Min **103 Elements of Mining** (3 cr). Open to nonmajors. Terminology and mining's role in national economics and way of life; includes mineral economics, management, prospecting, discovery, development, exploitation, processing, marketing.

Min **118 Miner Safety Training** (1 cr). A program to provide knowledge and training under Public Law CFR 30, Part 48, Health and Safety Training and Retraining of Miners.

Min **130 Computer Applications in Mining I** (1 cr). Introduction of PC as used in mining; MS-DOS, spreadsheet calculations in mining, commercial packages, and mining data bases. Two hrs of lab a wk.

Min **200** (s) **Seminar** (cr arr). Prereq: perm.

Min **204** (s) **Special Topics** (cr arr). Prereq: perm.

Min **230 Computer Applications in Mining II** (2 cr). FORTRAN programming to solve mining problems; survey of other common computer languages used in mining including BASIC, PASCAL, and C. One lec and 2 hrs of lab a wk. Prereq: Min 103, 130.

Min **290 Mine Development** (2 cr). Ore deposits, exploration techniques, reserve estimating, and preliminary mine development studies. Prereq: Geol 111 or perm.

Min **304 Explosives** (2 cr). Drilling and blasting equipment, detonation; use of commercial explosives and detonators; design of blasting rounds (surface and underground). One 1-day field trip. Prereq: jr standing or perm.

Min **350 Mineral Economics** (3 cr). Minerals as resources and commodities; importance of minerals, characteristics of their occurrence and production systems, and nature of mineral resources reserves; factors affecting supply and demand, pricing and marketing of mineral materials. Prereq: Econ 201, 202 or perm.

Min **J351/J561 Optimization of Engineering Systems** (3 cr). Applications of operations research theory and practice in the minerals industry; deterministic methods: linear, integer, and dynamic programming approaches to optimizing complex systems. Topics in stochastic processes and term project reqd for grad cr. Two lec and two hrs of lab a wk. Prereq: Math 175 or perm.

Min **352 Project Investment Analysis and Management** (3 cr). Project organization and management, economic and financial decisions, capital and production cost estimating, equipment selection techniques, operation design optimization, and project selection. Prereq: Min 230 or perm.

Min **370 Mine Services** (2 cr). Principles and design problems in compressed air power, hoisting, conveying, rail haulage, and material transfer. One field trip. Prereq: Min 103, Engr 210, or perm.

Min **372 Mine Ventilation** (3 cr). Gases, dust, and airflow through mines; circuit analysis and use of computer program to solve air network problems; fan selection and placement; health and safety regulations in the design of mine ventilation systems.

Min **380 Coal Mining Methods** (2 cr). Surface and underground coal mining methods, systems and design. Prereq: Min 103 or perm.

Min **400** (s) **Seminar** (cr arr). Prereq: perm.

Min **401 Rock Mechanics** (3 cr). Same as GeoE 407. Basic mechanical properties of rocks and rock masses; lab and in-situ tech to obtain strength, stress distribution, and deformation behavior in rock masses; application of analytical techniques such as the finite element method to design stable mine structures and supporting systems; basic mechanism and new tech of rock fragmentation relating to drilling, blasting, and crushing. Prereq: Engr 350.

Min **402 Rock Mechanics Lab** (2 cr). Measuring rock sample strengths; photo elastic and finite element modeling.

Min **404** (s) **Special Topics** (cr arr). Prereq: perm.

Min **405 Development of Industrial Minerals Deposits** (3 cr). Geological, engineering, and economic aspects unique in the development of quarries and industrial mineral deposits; effectively evaluate and design operation of such deposits.

Min **J409/J509 Solution Mining** (3 cr). See Met J409/J509.

Min **J410/J510 Simulation of Engineering Systems** (3 cr). Use of the GPSS simulation language for simulation of mine engineering systems; topics in inventory control, scheduling, and optimization; animation of simulation results. Additional projects/assignments reqd for grad cr. Prereq: Min 351 or perm.

Min **J419/J519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Min **421 Engineering Geophysics** (3 cr). Same as Geop 421. Quantitative treatment of surface and borehole geophysics with emphasis on engineering problems. Three 1-day field trips.

Min **422 Principles of General Geophysics** (3 cr). See Geop 422.

Min **425 Mineral Land Management** (3 cr). See Geog 425.

Min **428 Geostatistics** (3 cr). See GeoE 428.

Min **450 Surface Mine Design** (2 cr). Introduction to surface mine design, mine surveying, reserve estimating, scheduling, equipment selection, and costing. One surveying field trip (joint with Min 451). Prereq: Min 103, 351, 352, CE 211 or perm; coreq: Min 452.

Min **451 Underground Mine Design** (3 cr). Evaluation and selection of underground mining methods and engineering systems; mine surveying, costing, and modeling. Two lec and two hrs of lab a wk; one surveying field trip (joint with Min 450). Prereq: Min 103, 351, 352, CE 211 or perm.

Min **452 Surface Mine Design Lab** (1 cr). Application of geologic data base management and reserve estimating of mineral or coal deposits. Two hrs of lab a wk.

Min **453 Mine Drainage and Pumping** (2 cr). Design of drainage and pumping system, including construction drawings and equipment specification. Six hrs of lab a wk.

Min **454 Geologic and Mine Modeling** (2 cr). Use of geologic, geostatistical, and mine modeling packages for ore body modeling, reserve and preliminary mine design. Four hrs of lab a wk. Prereq: senior standing in engineering or geology and perm.

Min **455 Resource Feasibility Studies** (2 cr). Feasibility analysis for mineral products.

Min **472 Mineral Industry Case Studies** (3 cr). Same as Geog 492 and Geol 472. Laws, environment, and social issues through definition, evaluation, exploitation, and production of the resource to final sales, transportation economics, and reclamation; specific cases examined by multidisciplinary groups producing a final decision. Prereq: sr standing and perm.

Min **499** (s) **Directed Study** (cr arr). Prereq: perm.

Min **500 Master's Research and Thesis** (cr arr).

Min **501** (s) **Seminar** (cr arr). Prereq: perm.

Min **502** (s) **Directed Study** (cr arr). Prereq: perm.

Min **503 Mine Stress Analysis** (3 cr). Application of techniques in experimental stress analysis for structural design in all phases of the engineering system; photoelastic modeling and coating; strain gauge techniques; stress patterns in frameworks, rock masses, and foundations. One lec and two 3-hr labs a wk. Prereq: Engr 350.

Min **504 Rock Mechanics II** (3 cr). Same as GeoE 507. Theories of rupture of elastic and inelastic, brittle materials; mechanisms of fracture propagation and effects in engineering structures and rock fragmentation; effects of nuclear blasting, earthquakes and other dynamic stress waves. Prereq: Min 401 or perm.

Min **506** (s) **Special Topics** (cr arr). Prereq: perm.

Min **509 Solution Mining** (3 cr). See Met J409/J509.

Min **510 Simulation of Engineering Systems** (3 cr). See Min J410/J510.

Min **513 Advanced Mine Ventilation I** (3-5 cr). Thermodynamic and motive column analyses of mine airflow. Students who have taken Min 372 register for 3 cr.

Min **519 A World History of Mining, Metals, and Materials** (3 cr). See Geol J419/J519.

Min **520 Mining Geophysics** (3 cr). Same as Geop 521. Theory and application of magnetic, electric, electromagnetic, and radioactive methods of geophysical prospecting for metallic and nonmetallic mineral deposits. Two lec and one 3-hr lab a wk; one 3-day field trip. Prereq: perm. (Alt/yrs)

Min **528 Advanced Geostatistics** (3 cr). See GeoE 528.

Min **540 Mine Valuation** (3 cr). Mine examination and valuation; sampling methods and calculations; determining present value of a deposit.

Min **560 Mine Management** (3 cr). Financing, management labor relations, operations, and government regulations. Prereq: perm.

Min **561 Optimization of Engineering Systems** (3 cr). See Min J351/J561.

Min **570 Mine Systems Design** (3-6 cr). Integration and synthesis of equipment, methods, and design; use of latest operation research tools to provide a complete mine plan of operation. Prereq: perm. (Alt/yrs)

Min **597** (s) **Practicum** (cr arr). Prereq: perm.

Min **598** (s) **Internship** (cr arr). Prereq: perm.

Min **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Mining Engineering-Metallurgy

Patrick R. Taylor, Head, Dept. of Materials, Metallurgical, Mining, and Geological Engineering (203 McClure Hall 83844-3024; phone 208/885-6376).

MnMt **200** (s) **Seminar** (0 cr). Appropriate speakers and unscheduled activities relating to the mineral field. Graded P/F.

MnMt **400** (s) **Seminar** (0 cr). Appropriate speakers and unscheduled activities relating to the mineral field. Graded P/F.

MnMt **600 Doctoral Research and Dissertation** (cr arr). Prereq: enrollment in the composite doctoral program in mining engineering-metallurgy.

Music

James L. Murphy, Director, Lionel Hampton School of Music (205 Music Bldg. 83844-4015; phone 208/885-6231; e-mail music@uidaho.edu).

APPLIED PERFORMANCE STUDIES

MusA **114** (s) **Individual Instruction** (1 cr, max arr). For secondary or minor instrument, nonmajors, and undeclared majors; may not be taken for audit. One-half hour of private instruction a wk. Instruction offered in piano, organ, harpsichord, voice, flute, oboe, clarinet, saxophone, bassoon, trumpet, horn, euphonium, trombone, tuba, percussion, violin, viola, cello, contrabass, harp, or guitar. Final exam conducted by jury in some sections. Prereq: audition by committee.

MusA **115** (s) **Individual Instruction** (2 cr, max 4). For music majors who need to correct deficiencies in major instrument area; may not be taken for audit. One hour of private instruction a wk plus convocation/area recital/studio class; final exam conducted by jury. See MusA 114 for instructional areas. Prereq: placement audition by committee.

MusA **J117/J317/J517** (s) **University Choir** (1 cr, max arr). Open to all students. One 2-1/2 hr night rehearsal a wk. Prereq: perm.

MusA **J118/J318/J518** (s) **Jazz Choir** (1 cr, max arr). Open to all students. Three rehearsals a wk. Prereq: perm.

MusA **J119/J319/J519** (s) **Marching Band** (1-3 cr, max arr). Open to all students. Performance at home football games and other events and travel to selected away football games; field trips. Prereq: perm. (Fall only)

MusA **J121/J321/J521** (s) **Concert Band** (1 cr, max arr). Open to all students. Three rehearsals a wk. Prereq: perm. (Spring only)

MusA **124** (s) **Individual Instruction** (2 cr, max arr). For music majors in music degree programs other than performance; may not be taken for audit. One hour of private instruction a wk plus convocation/area recital/studio class; final exam conducted by jury. See MusA 114 for instruction areas. Prereq: placement audition by committee.

MusA **134** (s) **Individual Instruction** (3 cr, max arr). For applied music majors in the B.Mus. performance degree; may not be taken for audit. One hour of private instruction a wk plus convocation/area recital/studio class; final exam conducted by jury. See MusA 114 for instruction areas. Prereq: placement audition by committee.

MusA **145-146/245-246 Piano Class** (1 cr). May not be taken for audit. Four-semester beginning piano sequence. Two lec-labs a wk. Prereq for MusA 245: "C" or better in MusA 146; prereq for MusA 246: "C" or better in MusA 245.

MusA **147-148 Voice Class** (1 cr). May not be taken for audit. Two-semester sequence for beginning singers. Two lec-labs a wk. Prereq for 148: MusA 147 or perm of dept.

MusA **J149-J150/J349-J350 Voice for Actors** (1 cr, max arr). Group voice instruction based on theatre and musical theatre materials. Prereq: audition and perm of dept.

MusA **151-152 Guitar Class** (1 cr). Two lec-labs a wk. May not be taken for audit. Prereq: perm of dept.

MusA **153 Guitar Class for Nonmajors** (2 cr). Group instruction in guitar and basic musicianship. May not be taken for audit.

MusA **200** (s) **Seminar** (cr arr). Prereq: perm.

MusA **203** (s) **Workshop** (cr arr). Prereq: perm.

MusA **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusA **245-246 Piano Class** (1 cr). See MusA 145-146/245-246.

MusA **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **314** (s) **Individual Instruction** (1 cr, max arr). See MusA 114 for description.

MusA **J315/J515 Accompanying** (1 cr, max arr). Principles of accompanying with use of keyboard instruments; lab assignments under supervision. Two lec-labs a wk. Prereq: audition and completion of semester of MusA 124 or 134.

MusA **J316/J516 Concert Choir—Vandaleers** (1 cr, max arr). Open to all students. Four rehearsals a wk; field trips. Prereq: audition and perm.

MusA **317** (s) **University Choir** (1 cr, max arr). See MusA J117/J317/J517.

MusA **318** (s) **Jazz Choir** (1 cr, max arr). See MusA J118/J318/J518.

MusA **319** (s) **Marching Band** (1-3 cr, max arr). See MusA J119/J319/J519.

MusA **J320/J520** (s) **Wind Ensemble** (1 cr, max arr). Open to all students. Four rehearsals a wk. Prereq: audition and perm.

MusA **321** (s) **Concert Band** (1 cr, max arr). See MusA J121/J321/J521.

MusA **J322/J522** (s) **Orchestra** (1 cr, max arr). Open to all students. Four rehearsals a wk. Prereq: audition and perm.

MusA **J323/J523** (s) **Jazz Ensemble** (1 cr, max arr). Open to all students. Three rehearsals a wk. Prereq: audition and perm.

MusA **324** (s) **Individual Instruction** (2 cr, max arr). See MusA 124 for description; see "Upper-Division Standing" in part 5 for prerequisites.

MusA **334** (s) **Individual Instruction** (3 cr, max arr). See MusA 134 for description; see "Upper-Division Standing" in part 5 for prerequisites.

MusA **349-350 Voice for Actors** (1 cr, max arr). See MusA J149-J150/J349-J350.

MusA **J365/J565** (s) **Chamber Ensemble** (1 cr, max arr). Open to all students. Performance opportunities in chamber ensembles: string, brass, woodwind, percussion, keyboard, vocal, and mixed. Prereq: audition and perm.

MusA **J380/J580** (s) **Opera Workshop** (1-3 cr, max arr). Analysis, rehearsal, and performance of operatic literature. Prereq: audition and perm.

MusA **387 Conducting I** (2 cr). Conducting techniques, score reading, and interpretation of scores for large choral and instrumental ensembles. Prereq: MusC 141. (Fall only)

MusA **400** (s) **Seminar** (cr arr). Prereq: perm.

MusA **403** (s) **Workshop** (cr arr). Prereq: perm.

MusA **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusA **J454/J554 Performance Practices** (2 cr). Performance practices of music from Renaissance to present. Prereq: MusH 321-322 and upper-division status (see "Curricular Requirements") or graduate status or perm.

MusA **J455/J555 Keyboard Performance Practices** (1 cr). Study of interpretation of keyboard music from Baroque through 20th century; learn to interpret scores, teach, and perform keyboard music stylistically; acquire knowledge of major performing artists and recordings from each period of music. Registration for graduate credit requires additional research into original treatises from each period of music, resulting in the editing of a piece of music from each of these periods. Coreq: MusA J454/J554.

MusA **487 Conducting II** (2 cr). Prereq: MusA 387 or perm. (Spring only)

MusA **490 Recital** (0 cr). For students required to have one-half recital. Graded P/F. Prereq: audition and perm of dept; coreq: MusA 324 or 334.

MusA **491 Recital** (0 cr). For students required to have a full recital. Graded P/F. Prereq: audition and perm of dept; coreq: MusA 334.

MusA **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **500 Master's Research and Thesis** (cr arr).

MusA **501** (s) **Seminar** (cr arr). Prereq: perm.

MusA **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusA **503** (s) **Workshop** (cr arr). Prereq: perm.

MusA **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusA **514** (s) **Individual Instruction** (1 cr, max arr). See MusA 114 for description.

MusA **515 Accompanying** (1 cr, max arr). See MusA J315/J515.

MusA **516 Concert Choir—Vandaleers** (1 cr, max arr). See MusA J316/J516.

MusA **517** (s) **University Choir** (1 cr, max arr). See MusA J117/J317/J517.

MusA **518** (s) **Jazz Choir** (1 cr, max arr). See MusA J118/J318/J518.

MusA **519** (s) **Marching Band** (1-3 cr, max arr). See MusA J119/J319/J519.

MusA **520** (s) **Wind Ensemble** (1 cr, max arr). See MusA J320/J520.

MusA **521** (s) **Concert Band** (1 cr, max arr). See MusA J121/J321/J521.

MusA **522** (s) **Orchestra** (1 cr, max arr). See MusA J322/J522.

MusA **523** (s) **Jazz Ensemble** (1 cr, max arr). See MusA J323/J523.

MusA **524** (s) **Individual Instruction** (2-3 cr, max arr). See MusA 124 for description.

MusA **534** (s) **Individual Instruction** (3-6 cr, max arr). For students in the M.Mus. performance degree; see MusA 134 for description.

MusA **554 Performance Practices** (2 cr). See MusA J454/J554.

MusA **555 Keyboard Performance Practices** (1 cr). See MusA J455/J555.

MusA **565** (s) **Chamber Ensemble** (1 cr, max arr). See MusA J365/J565.

MusA **580** (s) **Opera Workshop** (1-3 cr, max arr). See MusA J380/J580.

MusA **590** (s) **Master's Recital** (0 cr). For students whose emphasis is other than performance. May be repeated. Graded P/F. Prereq: audition and perm of committee; coreq: MusA 524.

MusA **591** (s) **Master's Recital** (0 cr). For students whose emphasis is in performance. May be repeated. Graded P/F. Prereq: audition and perm of committee; coreq: MusA 534.

MusA **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

THEORY AND COMPOSITION

MusC **120 Fundamentals of Music** (2 cr). For students in fields other than music. Not open to students who have taken MusC 141.

MusC **139-140 Aural Skills I-II** (2 cr). Exercises and drill in sight-singing and ear training. Three lec-labs a wk. Recommended coreq: MusA 145-146.

MusC **141 Theory of Music I** (2 cr). Melodic and harmonic materials, part-writing skills, and analysis. Prereq: perm of dept. (Fall only)

MusC **142 Theory of Music II** (2 cr). Harmonic materials, part-writing skills, and analysis. Prereq: "C" or better in MusC 141. (Spring only)

MusC **200** (s) **Seminar** (cr arr). Prereq: perm.

MusC **203** (s) **Workshop** (cr arr). Prereq: perm.

MusC **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusC **239-240 Aural Skills III-IV** (1 cr). Continuation of MusC 140. Two lec-labs a wk. Prereq: "C" or better in MusC 139-140; recommended coreq: MusA 245-246.

MusC **241 Theory of Music III** (3 cr). Prereq: "C" or better in MusC 142. (Fall only)

MusC **242 Theory of Music IV** (3 cr). Prereq: "C" or better in MusC 241. (Spring only)

MusC **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **325 Composition** (2 cr, max arr). Creative writing. Prereq: MusC 240, 242.

MusC **328 Instrumental and Choral Arranging** (3 cr). Principles of instrumentation, transcription, and arranging with emphasis on idiomatic instrumental and choral writing leading to projects in scoring for chamber, band, orchestral, and vocal ensembles. Prereq: "C" or better in MusC 240 and 242.

MusC **329 Theoretical Basis of Jazz** (2 cr). Harmonic, melodic, rhythmic, and stylistic analysis of principal trends. Prereq: MusC 141 or perm.

MusC **331 Counterpoint** (3 cr). Style and technique of polyphonic 16th century vocal music through 18th century instrumental music, with emphasis on two- to three-part writing; motet, canon, invention, and fugue. Prereq: MusC 242 or perm.

MusC **400** (s) **Seminar** (cr arr). Prereq: perm.

MusC **403** (s) **Workshop** (cr arr). Prereq: perm.

MusC **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusC **425 Advanced Composition** (2 cr, max arr). Continuation of MusC 325. Increasing emphasis on varied media and larger forms, but with value being placed on creativity and originality. Prereq: MusC 325 (two semesters)

MusC **426 Electronic Music** (2 cr). Techniques of musical composition using electronic media. Prereq: MusC 242 or perm.

MusC **442 Musical Analysis** (2 cr). Study of traditional forms and analytical techniques. Prereq: MusC 242.

MusC **490 Senior Recital** (0 cr). For students in composition required to have a full recital. Graded P/F. Prereq: audition and perm of dept; coreq: MusC 425.

MusC **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **500 Master's Research and Thesis** (cr arr).

MusC **501** (s) **Seminar** (cr arr). Prereq: perm.

MusC **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusC **503** (s) **Workshop** (cr arr). Prereq: perm.

MusC **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusC **507 Individual Instruction: Composition** (cr arr). Prereq: MusC 525 or perm.

MusC **521 Musical Analysis** (3 cr). Analysis of selected musical compositions. Prereq: perm.

MusC **525 Composition** (2 cr, max arr). Creative writing.

MusC **590** (s) **Master's Recital** (0 cr). For students whose degree requires a composition recital as part of the degree requirements. Graded P/F. Prereq: audition and perm of committee; coreq: MusC 507 or 525.

MusC **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

HISTORY AND LITERATURE

MusH **101** (s) **Survey of Music** (3 cr) (C). May be used as core credit in J-3-d. Not open for cr to majors or to those who have taken MusC 141. Intro to the art and nature of music; emphasis on aural skills, historical styles, musical forms, and the literature of music.

MusH **111 Introduction to Music** (2 cr). Intro to art and nature of music; representative world musical cultures and overview of Western vernacular and cultivated traditions. (Spring only)

MusH **200** (s) **Seminar** (cr arr). Prereq: perm.

MusH **203** (s) **Workshop** (cr arr). Prereq: perm.

MusH **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusH **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **321 Music in Western Civilization I** (3 cr). Musical culture, styles, and genres from the Middle Ages through 1750. Prereq: "C" or better in MusH 101 or 111. (Fall only)

MusH **322 Music in Western Civilization II** (3 cr). European and American musical culture, styles, and genres from 1750 to World War I. Prereq: "C" or better in MusH 101 or 111. (Spring only)

MusH **323 Music in Western Civilization III** (3 cr). European and American musical cultures, styles, and genres, including jazz, from World War I to the present. Prereq: "C" or better in MusH 101 or 111. (Fall only)

MusH **400** (s) **Seminar** (cr arr). Prereq: perm.

MusH **403** (s) **Workshop** (cr arr). Prereq: perm.

MusH **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusH **J410/J510** (s) **Studies in Jazz History** (3 cr). Selected topics in jazz. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J417/J517** (s) **Studies in Baroque Music** (3 cr). Selected topics in Baroque music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J418/J518** (s) **Studies in Classic/Romantic Music** (3 cr). Selected topics in Classic/Romantic music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J419/J519** (s) **Studies in 20th-Century Music** (3 cr). Selected topics in 20th-century music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J440/J540** (s) **Studies in American Music** (3 cr). Selected topics in American music. Additional projects/assignments reqd for grad cr. Prereq: MusH 321-323 or perm. (Alt/yrs)

MusH **J451/J551** (s) **Repertoire** (2 cr, max arr). May be repeated for cr as content changes. Historical and analytical survey of literature available in all performing media. Additional projects/assignments reqd for grad cr. Prereq: jr standing and perm.

MusH **J459/J559** (s) **Studies in Opera Literature** (3 cr). Open to all students. Selected masterworks of opera literature. Additional projects/assignments reqd for grad cr. Prereq: perm. (Alt/yrs)

MusH **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **500 Master's Research and Thesis** (cr arr).

MusH **501** (s) **Seminar** (cr arr). Prereq: perm.

MusH **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusH **503** (s) **Workshop** (cr arr). Prereq: perm.

MusH **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusH **510** (s) **Studies in Jazz History** (3 cr). See MusH J410/J510.

MusH **517** (s) **Studies in Baroque Music** (3 cr). See MusH J417/J517.

MusH **518** (s) **Studies in Classic/Romantic Music** (3 cr). See MusH J418/J518.

MusH **519** (s) **Studies in 20th-Century Music** (3 cr). See MusH J419/J519.

MusH **540** (s) **Studies in American Music** (3 cr). See MusH J440/J540.

MusH **551** (s) **Repertoire** (2 cr, max arr). See MusH J451/J551.

MusH **559** (s) **Studies in Opera Literature** (3 cr). See MusH J459/J559.

MusH **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

MUSIC TEACHING

MusT **200** (s) **Seminar** (cr arr). Prereq: perm.

MusT **201 Introduction to Music Teaching** (1 cr). Music education majors take this course in lieu of EDTE 202. Presentation of field experiences in primary and secondary music education. Graded P/F. Prereq or coreq: ED 201.

MusT **203** (s) **Workshop** (cr arr). Prereq: perm.

MusT **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusT **251 String Instrument Techniques** (1 cr). Group instruction. Problems of playing and teaching stringed instruments in elementary and secondary schools. Prereq: perm.

MusT **253 Brass Instrument Techniques** (1 cr). Group instruction. Problems of playing and teaching brass instruments in elementary and secondary schools. Prereq: perm.

MusT **254 Percussion Techniques** (1 cr). Group instruction. Problems of playing and teaching percussion instruments in elementary and secondary schools. Prereq: perm.

MusT **255 Woodwind Techniques** (1 cr). Group instruction. Problems of playing and teaching clarinet, flute, and saxophone in elementary and secondary schools. Prereq: perm.

MusT **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **352 Double Reed Techniques** (1 cr). Group instruction. Prereq: MusT 252 or perm. (Fall only)

MusT **381 Elementary School Music Methods I** (3 cr). Same as EDTE 381. Curriculum, organization, and instructional materials for teaching general classroom music. Must be taken before enrolling in MusT 432. Some sections are for non-music majors only; some sections are for music majors only and include two or three teaching experiences that must be scheduled in the elementary schools outside of class time. Prereq: perm.

MusT **383 Principles of Music Teaching** (3 cr). Students in the School of Music take this course in lieu of ED 468. Philosophy, principles, curriculum, and organization of the school music program. Must be taken before enrolling in MusT 432. Prereq: MusC 142, and upper-division standing in studio or perm.

MusT **385 Choral Music in the Secondary School** (2 cr). Methods, instructional materials, and techniques for teaching choral music in grades 7-12. Two lec and one lab a wk. Must be taken before enrolling in MusT 432. Prereq: 2 cr in MusA 316 or 317, MusC 142; prereq or coreq: MusT 383, MusA 387, or perm.

MusT **386 Instrumental Music in the Secondary School** (2 cr). Methods, instructional materials, and techniques for teaching instrumental music in grades 7-12. Two lec and one lab a wk. Must be taken before enrolling in MusT 432. Prereq: MusC 142; prereq or coreq: MusT 383, MusA 387, or perm.

MusT **389 Orff, Kodaly, and Dalcroze** (2 cr). Philosophies and teaching techniques attributed to Carl Orff, Emile Jacques Dalcroze, and Zoltan Kodaly; Orff emphasizes movement, improvisation, singing, and percussion instruments; Dalcroze emphasizes movement; Kodaly emphasizes solfege singing, folk songs, child development, and personal musicianship. Prereq: MusT/EDTE 381 or perm.

MusT **400** (s) **Seminar** (cr arr). Prereq: perm.

MusT **403** (s) **Workshop** (cr arr). Prereq: perm.

MusT **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusT **432** (s) **Practicum: Music Teaching** (7 or 14 cr). Supervised music teaching in public schools. Graded P/F. Prereq: ED 312, 314, MusA 490, MusT 445, cumulative GPA of 2.50, and perm of School of Music. (Submit application via coordinator of music education to the director of clinical experiences in teacher education by December 1 of school yr before enrolling).

MusT **J435/J535** (s) **Pedagogy and Materials** (2 cr, max arr). Methods and materials of performance techniques for each performance field. Additional projects/assignments reqd for grad cr. Prereq: jr standing and perm.

MusT **438** (s) **Practicum** (cr arr). Studio and classroom teaching of secondary music majors, minors, or electives. Prereq: perm.

MusT **445 Proseminar in Music Teaching** (2 cr). Orientation to practicum; should be taken in the final semester before student teaching. In addition to the regularly scheduled class times, there will be one evening meeting, set late in the semester with class input, that will be devoted to a two-hour mock interview process.

MusT **465 Jazz Band Rehearsal Techniques** (1 cr). Methods, materials, and literature for jazz bands in public schools. Coreq: MusT 466, 467.

MusT **466 Marching Band Techniques** (1 cr). Techniques of drilling; materials for field and street maneuvers; preparation of shows. Prereq: MusC 242; coreq: MusT 465, 467.

MusT **467 Instrumental Literature for Public Schools** (1 cr). Music and materials suitable for instrumental ensembles in schools. Coreq: MusT 465, 466.

MusT **485 Choral Ensemble Rehearsal Techniques** (1 cr, max arr). Various techniques of rehearsing singers in an ensemble. Coreq: MusT 385.

MusT **486 Instrumental Ensemble Rehearsal Techniques** (1 cr, max arr). Various techniques of rehearsing string, wind, and percussion players in an ensemble. Coreq: MusT 386.

MusT **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **500 Master's Research and Thesis** (cr arr).

MusT **501** (s) **Seminar** (cr arr). Prereq: perm.

MusT **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusT **503** (s) **Workshop** (cr arr). Prereq: perm.

MusT **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusT **535** (s) **Pedagogy and Materials** (2 cr, max arr). See MusT J435/J535.

MusT **538** (s) **Practicum** (cr arr). Studio and classroom teaching of secondary music majors, minors, or electives. Prereq: perm.

MusT **583 School Music Administration** (2 cr). Principles underlying sound policies in the supervision and administration of school music. Prereq: one yr of teaching experience or perm.

MusT **597** (s) **Practicum** (cr arr). Prereq: perm.

MusT **598** (s) **Internship** (cr arr). Prereq: perm.

MusT **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

GENERAL

MusX **140 Convocation** (0 cr). Required of all music majors for seven semesters and music minors for two semesters (minimum of 10 recitals a semester). Graded P/F.

MusX **200** (s) **Seminar** (cr arr). Prereq: perm.

MusX **203** (s) **Workshop** (cr arr). Prereq: perm.

MusX **204** (s) **Special Topics** (cr arr). Prereq: perm.

MusX **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

MusX **283-284** (s) **Diction for Singers** (2 cr). Two-semester sequence (English/Italian and German/French) in study of language sounds as represented by the International Phonetic Assoc. (Alt/yrs)

MusX **299** (s) **Directed Study** (cr arr). Prereq: perm.

MusX **400** (s) **Seminar** (cr arr). Prereq: perm.

MusX **403** (s) **Workshop** (cr arr). Prereq: perm.

MusX **404** (s) **Special Topics** (cr arr). Prereq: perm.

MusX **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

MusX **498** (s) **Internship** (1-3 cr). Open only to majors in the School of Music. Graded P/F. Prereq: perm of director, School of Music.

MusX **499** (s) **Directed Study** (cr arr). Prereq: perm.

MusX **500 Master's Research and Thesis** (cr arr).

MusX **501** (s) **Seminar** (cr arr). Prereq: perm.

MusX **502** (s) **Directed Study** (cr arr). Prereq: perm.

MusX **503** (s) **Workshop** (cr arr). Prereq: perm.

MusX **504** (s) **Special Topics** (cr arr). Prereq: perm.

MusX **511 Bibliography and Research** (3 cr). Orientation to grad study; bibliography and research procedures. Prereq: admission to graduate program or perm.

MusX **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Naval Science

Phillip L. Sowa, Head, Dept. of Naval Science (101 Navy Bldg. 83844-1122; phone 208/885-6333).

NS **ID100 Drill/Lab** (0 cr). WSU N S 100. Reqd of all Navy-Marine Corps OEP students. Two 1-hr labs a wk.

NS **ID101 Introduction to Naval Science** (2 cr). WSU N S 101. Intro to the Navy: customs, structure, basic leadership, career paths, and ship and aircraft of the U.S. Fleet.

NS **ID102 Ships Systems I** (3 cr). WSU N S 102. Intro to Naval shipboard engineering systems; propulsion systems; nuclear, gas turbine, and conventional; auxiliary systems and shipboard damage control; basic concepts in ship design.

NS **200** (s) **Seminar** (cr arr). Prereq: perm.

NS **ID201 Ships Systems II** (3 cr). WSU N S 201. Naval weapons systems; theory and process of detection (radar and sonar), evaluation; weapons; delivery, guidance, and explosives; integration of weapons systems with command, control, and communications systems.

NS **ID202 Seapower and Maritime Affairs** (2 cr). WSU N S 202. Survey of U.S. Naval history; seapower and maritime affairs emphasizing present-day concerns; comparisons of U.S. and foreign Naval strategies.

NS **299** (s) **Directed Study** (cr arr). Prereq: perm.

NS **ID301 Navigation** (3 cr). WSU N S 301. Theory, principles, and procedures of terrestrial and electronic navigation, and "rules of the nautical road."

NS **ID302 Naval Operations** (3 cr). WSU N S 302. Naval operations and tactics, relative motion, and Maneuvering Boards.

NS **ID311 Evolution of Warfare** (3 cr). WSU N S 311. Evolution of war through tactics; strategy from Sun Tzu to J.F.C. Fuller. Recommended preparation: NS 101, 202.

NS **ID401 Naval Organization and Management** (2 cr). WSU N S 401. Theories of management and management resources, motivational theories, and leadership.

NS **ID402 Naval Leadership** (2 cr). WSU N S 402. Ethical leadership and naval administration, emphasizing the U.C.M.J., human resource management, material management, and supply systems. Recommended preparation: NS 401.

NS **ID412 Amphibious Operations** (3 cr). WSU N S 412. Amphibious doctrine from Gallipoli to the Mayaguez. Recommended preparation: NS 311.

NS **499** (s) **Directed Study** (cr arr). Prereq: perm.

Nuclear Engineering

Steven G. Penoncello, Interim Director, Program in Nuclear Engineering (125 Janssen Engr. Bldg. 83844-1011; phone 208/885-6479). Faculty: Thomas E. Carleson, Donald F. Elger, Joseph J. Feeley, E. Clark Lemmon, Alan G. Stephens.

RELATED FIELDS: For other courses offered in the nuclear field, see Chem 513 and 516, Phys 465, 566, 585, 586, and 587.

NE **R120 Fundamental Concepts of Nuclear Engineering** (3 cr). Basic concepts; intro to atomic structure, nuclear reactions, fission process, nuclear reactor fundamentals and types.

NE **R220 Analysis of Nuclear Engineering Systems I** (3 cr). Primarily for technologists. Elementary quantitative analysis, with emphasis on the qualitative aspects of nuclear engineering systems; ore processing, fuel element fabrication, materials selection, shielding, and control. Prereq: NE 120 or perm.

NE **R221 Analysis of Nuclear Engineering Systems II** (3 cr). Primarily for technologists. Continuation of NE R220. Heat removal, reactor design, fuel recycle, and waste disposal. Prereq: NE 220 or perm.

NE **ID&WS360 Nuclear Engineering** (3 cr). WSU M E 461. Atomic and nuclear physics; reactor system physics and heat transfer. Prereq: Engr 335, Math 310.

NE **404** (s) **Special Topics** (cr arr). Prereq: perm.

NE **ID460 Nuclear Reactor Engineering** (3 cr). WSU M E 460. Nuclear reactor design problems in thermodynamics, fluid flow, heat transfer, fuel preparation, waste disposal, and materials selection; disc of reactor types. Prereq: NE 360 or perm.

NE **R470 Nuclear Reactor Safety** (3 cr). Light water reactor safety: evaluation methods, system disturbances, safety criteria, containment, NRC licensing process, and computer codes for nuclear safety analysis; intro to liquid metal safety. Prereq: perm.

NE **R500 Master's Research and Thesis** (cr arr).

NE **R501** (s) **Seminar** (cr arr). Prereq: perm.

NE **502** (s) **Directed Study** (cr arr). Prereq: perm.

NE **R530 Two-Phase Flow** (3 cr). Treatment of fluid mechanics and heat transfer in conjunction with nuclear reactors where two-phase flow problems are found.

NE **R540 Fusion Energy** (3 cr). Basic concepts and experimental approaches to fusion, elementary plasma theory, plasma oscillations, heating; fusion reactor technology development and long range prospects.

NE **R550 Topics in Advanced Nuclear Engineering** (3 cr). Prereq: perm.

NE **R565 Reactor Engineering** (3 cr). Radiation shielding, materials, instrumentation and controls, separation of stable isotopes, chemical separation and processing, special techniques. Prereq: Phys 566 or perm.

NE **R580 Waste Management and Nuclear Fuel Reprocessing** (3 cr). Head-end processing, solvent extraction processes, ion exchange processes, precipitation processes, and effluent disposal.

NE **581 Treatment of Radioactive Waste** (3 cr). Alternative processes and operations for treatment of radioactive wastes before long-term storage. Prereq: Math 310, NE 360 or Phys 587.

Philosophy

Kathryn Paxton George, Chair, Dept. of Philosophy (407 Morrill Hall 83844-3016; phone 208/885-7107; http://www.ls.uidaho.edu/Phil).

Phil **103 Ethics** (3 cr) (C). May be used as core credit in J-3-d. Introduction to philosophical reasoning through historical study of Western moral thought.

Phil **201 Critical Thinking** (3 cr). Acquiring and improving important skills of thinking, reading, and writing critically; emphasis on avoiding fallacies and mastering forms of valid argument in ordinary language.

Phil **202 Introduction to Symbolic Logic** (3 cr). Development of systematic techniques for assessing validity of arguments; includes categorical logic, propositional logic, and elementary quantificational logic.

Phil **204** (s) **Special Topics** (cr arr). Prereq: perm.

Phil **240 Belief and Reality** (3 cr). Introduction to epistemology (examination of grounds and limits of knowledge) and metaphysics (inquiry into the nature of reality) through historical and contemporary readings.

Phil **ID&WS250 Introduction to Philosophy of Science** (3 cr). WSU Phil 350. Introduction to the critical analysis of the aims and methods of science, its principles, practices, and achievements. Prereq: 3 cr of philosophy or 3 cr of natural science.

Phil **252 Biomedical Ethics** (3 cr). Ethical questions in the health professions and medical research, with emphasis on current dilemmas faced by physicians, nurses, medical technologists, and dentists; case analysis in context of modern ethical theory.

Phil **302 Biblical Judaism: Texts and Thought** (3 cr). Same as RelS 302. Analysis of the Hebrew Bible (Old Testament) and related texts with an emphasis on hermeneutics and thought.

Phil **303 Early Christianity: Texts and Thought** (3 cr). Same as RelS 303. Analysis of the New Testament and other early Christian texts of the first and second centuries C.E. with an emphasis on hermeneutics and thought.

Phil **305 Philosophy of Religion** (3 cr). Same as RelS 305. Philosophical investigation of such issues as the existence and attributes of God, problems of free will and evil, afterlife, miracles, and creation.

Phil **306 Hindu Thought** (3 cr). Same as RelS 306. Analysis of the Vedas, the Upanishads, the Bhagavad-gita, Jainism, and later Hindu thought.

Phil **307 Buddhism** (3 cr). Same as RelS 307. Philosophy and religion of Gautama Buddha as it developed in India, Tibet, China, and Japan.

Phil **308 Confucianism and Taoism** (3 cr). Same as RelS 308. Analysis of writings of Lao-tzu, Confucius, Mencius, Chuang-tzu, and medieval Confucianism.

Phil **ID&WS309 History of Ancient Philosophy** (3 cr) (C). WSU Phil 290. Philosophical thought from the early Greeks through the Middle Ages; concentration on metaphysics and theory of knowledge.

Phil **ID&WS310 History of Modern Philosophy** (3 cr) (C). WSU Phil 305. Critical evaluation of the thought of major figures in early modern philosophy, such as Descartes, Leibniz, Spinoza, Locke, Berkeley, Hume, and Kant; emphasis on metaphysics and epistemology.

Phil **315 Existentialism** (3 cr). Analysis of the writings of such figures as Kierkegaard, Nietzsche, Dostoyevsky, Hesse, Kafka, Buber, Camus, and Sartre.

Phil **330 Contemporary Moral Problems** (3 cr). Philosophical case analysis in areas of current concern such as racism and sexism, sexual morality, professional responsibility, abortion, welfare of animals, and right to die.

Phil **ID&WS340 Metaphysics** (3 cr). WSU Phil 340. Classical and contemporary readings on such items as realism versus nominalism, free will and determinism, the nature of causality, the existence of God, personal identity, modality.

Phil **ID350 Philosophy of Biology** (3 cr). WSU Phil 418. Classical and current conceptual issues in the foundations and aims of biology, and the role of values and social concerns as they affect and interact with biological science, research, and technology. Recommended prereq: one college course in biological science.

Phil **WS402 Seminar in Symbolic Logic** (3 cr). WSU Phil 401. (Alt/yrs)

Phil **404** (s) **Special Topics** (cr arr). Prereq: perm.

Phil **415 Phenomenology** (3 cr). Survey of philosophy of Husserl, Heidegger, Merleau-Ponty, Sartre, and others in the phenomenological tradition.

Phil **416 Twentieth Century Analytic Philosophy** (3 cr). Examination of the thought of major figures in 20th century analytic philosophy, such as Moore, Russell, Frege, Wittgenstein, and Quine; evaluation of major movements such as logical positivism and "ordinary language" philosophy.

Phil **WS420 Contemporary Continental Philosophy** (3 cr). WSU Phil 420.

Phil **421 Philosophy of the Arts** (3 cr). Chief conceptions of the nature of the arts and their interpretation.

Phil **425 Feminism and Philosophy** (3 cr). Analysis of schools of feminist theory and impact of feminism on philosophy and other disciplines.

Phil **ID&WS430 Social and Political Philosophy** (3 cr). WSU Phil 445. Examination of basic issues of social justice and political organization, including theory of the state, liberty, equality, justification of rights, justice theory, and distributive justice.

Phil **ID&WS433 Ethical Theory** (3 cr)). WSU Phil 460. Critical analysis of classical consequentialist and deontic views as well as one or more recent theories such as emotivism and prescriptivism, feminist ethics, communitarianism, or virtue ethics. Prereq: Phil 103.

Phil **ID434 Philosophy of Law** (3 cr). WSU Phil 470. Analysis of fundamental philosophical issues in law and legal systems, including the nature of law, relation of law to morality, judicial method, and nature and ascription of rights.

Phil **436 Philosophy of War and Peace** (3 cr). Philosophical analysis of violent and nonviolent methods of political conflict resolution; may include just war theory, limited war theory, terrorism, institutionalized procedures for resolving political conflict, and pacifism.

Phil **ID&WS440 Theory of Knowledge** (3 cr). WSU Phil 335. Analysis of the nature of knowledge; survey of various philosophical positions on the sources and extent of what we know.

Phil **ID&WS442 Philosophy of Mind** (3 cr). WSU Phil 450. Survey of current philosophical theories of the nature of minds and mental states, including forms of dualism, reductive physicalism, functionalism, and eliminative materialism.

Phil **ID&WS443 Philosophy of Language** (3 cr). WSU Phil 410. Philosophical thinking about meaning, reference, and truth.

Phil **450 Ethics and Reasoning in Scientific Research and Practice** (3 cr). Principles of reasoning in experimental design and research, understanding and evaluating theoretical, statistical, and causal hypotheses; evaluating decisions based on scientific research; the role of values in scientific research; ethical issues involving fraud and deception, human experimentation, animal research, genetic engineering, biotechnology, and/or other areas. Prereq: Phil 103 or 201 or 202 or 240, or perm.

Phil **452 Environmental Philosophy** (3 cr). Same as EnvS 552; students in EnvS 552 have additional projects/assignments reqd for grad cr. Philosophical examination of various ethical, metaphysical, and legal issues concerning humans, nature, and the environment; issues covered may include biodiversity and species protection, animal rights, radical ecology, environmental racism, wilderness theory, population control, and property rights.

Phil **490 Senior Seminar** (3 cr). Required of all philosophy majors; capstone course devoted to mastery of the philosophical essay; topics will vary. Prereq: senior standing or completion of 24 credits in philosophy.

Phil **495** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Prereq: perm.

Phil **496 Teaching Methods in Philosophy** (2 cr, max 4). Graded P/F. Learn methods of teaching while assisting in an introductory-level philosophy course. Prereq: four upper-division courses in philosophy, the introductory course in which the student will participate, and perm of dept.

Phil **499** (s) **Directed Study** (cr arr). Prereq: perm.

Physical Education

Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance (101 Phys. Ed. Bldg. 83844-2401; phone 208/885-7921).

ACTIVITY COURSES

Note: PEB 105, 106, 107, and 108 may be repeated for cr if the student engages in a different activity or level of the same activity. Practical tests may be given at the beginning of the semester to determine the student's level of ability.

PEB **105** (s) **Dance** (1 cr, max arr). See Dan 105.

PEB **106** (s) **Individual and Dual Sports** (1 cr, max arr). Bowling, racket sports, fencing, golf, gymnastics, conditioning, backpacking, cycling, cross-country skiing, etc. Two days of field trips may be a part of the course requirements for such activities as backpacking, cycling, etc. Two hrs a wk. Graded P/F.

PEB **107** (s) **Team Sports** (1 cr, max arr). Field sports, volleyball, basketball, and softball. Two hrs a wk. Graded P/F.

PEB **108** (s) **Swimming** (1 cr, max arr). All levels of proficiency, including WSI, lifeguarding, diving, and scuba. Two hrs a wk. Graded P/F.

PROFESSIONAL COURSES

PEP **100 Introduction to Sport Sciences** (1 cr). Introduction to career opportunities within the field of sport science; topics on professional development, advising issues, and guest lectures from professionals practicing in related fields.

PEP **112 Skill and Analysis: Archery and Bowling** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of skills and common errors in archery and bowling. Two lec-labs a wk.

PEP **113 Skill and Analysis: Badminton/Racquet Sports** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of skills and common errors in badminton; units on other racquet sports. Two lec-labs a wk.

PEP **114 Skill and Analysis: Basketball** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of offensive and defensive skills and strategy in basketball. Two lec-labs a wk.

PEP **115 Skill and Analysis: Golf** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of correction of the golf stroke and game. Two lec-labs a wk.

PEP **116 Skill and Analysis: Soccer and Speedball** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of offensive and defensive skills and strategy in soccer and speedball. Two lec-labs a wk.

PEP **117 Skill and Analysis: Tennis** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of skills and common errors in tennis. Two lec-labs a wk.

PEP **118 Skill and Analysis: Track and Field** (1 cr). Skill development and knowledge of teaching progressions, techniques, analysis, and correction of skills in track and field. Two lec-labs a wk.

PEP **119 Skill and Analysis: Volleyball** (1 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of skills and strategy in volleyball. Two lec-labs a wk.

PEP **122 Skill and Analysis: Softball** (1 cr). Skill development and knowledge of teaching progressions, techniques, and common errors in softball. Two lec-labs a wk.

PEP **123 Survey of Field Sports** (1 cr). Intro to variety of field sports and activities found in various school curricula. Two lec-labs a wk.

PEP **124 Survey of Outdoor Pursuits I** (1 cr). Intro to fundamentals of outdoor activities, including how to incorporate them into a school curriculum. Two lec-labs a wk.

PEP **125 Survey of Outdoor Pursuits II** (1 cr). Intro to intermediate and advanced outdoor activities, including how to incorporate them into a school curriculum. Two lec-labs a wk.

PEP **160 Foundations of Physical Education and Education** (3 cr). Education and physical education, sport, and fitness aims, objectives, overview of principles, historical development, including current trends and issues.

PEP **200** (s) **Seminar** (cr arr). Prereq: perm.

PEP **201 Fitness Activities and Concepts** (2 cr). Topics related to individual fitness development; focus on development of personal skills in presenting and teaching fitness activities for public and private sector programs. Two lec and 1 hr of lab a wk.

PEP **202 Skill and Analysis: Stunts and Tumbling** (1 cr). Skill analysis, skill development, spotting, and teaching techniques in tumbling. Two lec-labs a wk.

PEP **203** (s) **Workshop** (cr arr). Prereq: perm.

PEP **204** (s) **Special Topics** (cr arr). Prereq: perm.

PEP **220 Coaching Youth Sports** (1 cr). Practical, hands-on introduction to basics of youth sports coaching; basics of developing appropriate coaching philosophy; how such sports sciences as sport psychology, sport pedagogy, sport physiology, sport medicine, sport law, and sport management help to effectively implement athlete-centered approach to coaching; students participate in six-week practicum and receive feedback on how to improve their coaching. Two lec a wk.

PEP **243 Recreation Activities** (2 cr). See Rec 243.

PEP **244 Lifeguarding** (2 cr). Trains individuals to lifeguard at swimming pools and nonsurf, open water beaches; Standard First Aid and CPR Certification reqd to receive Red Cross Lifeguarding Certification. One field trip. Prereq: intermediate swimming or perm.

PEP **250 Elementary Physical and Health Education** (3 cr). Content, methods, and materials in elementary school physical education and health for classroom teachers. Four hrs of lec-lab a wk.

PEP **WS261 Human Anatomy** (4 cr). WSU Kin 262.

PEP **266 Aquatic Instructor's Course** (2 cr). Methods. Students passing Red Cross standards will receive instructor's certificate. Prereq: certificate in lifeguarding or emergency water safety and pass swimming skills pre-test.

PEP **J275/J475 Moral Reasoning in Sport** (2 cr). Current ethical issues in sport, such as performance-enhancing drugs, mechanization, cheating, eligibility; challenges students to creatively examine their beliefs. Additional projects/assignments reqd for cr in PEP 475.

PEP **WS290 Sport Program** (3 cr). WSU SpMgt 290.

PEP **299** (s) **Directed Study** (cr arr). Prereq: perm.

PEP **300 Human Kinesiology** (2 cr). Anatomical and mechanical analysis of human movement in sport and exercise. Three hrs of lec-lab a wk. Prereq: Zool 120.

PEP **305 Applied Sports Psychology** (3 cr). Overview of key psychological issues in physical education and sport including competition, personality, anxiety, motivation, self-confidence, imagery, and stress management; practical applications of psychological concepts of youth sports and development of key psychological skills for competition.

PEP **310 Cultural and Philosophical Aspects of Sport** (2 cr). Analysis of philosophical and sociological phenomenon in sport.

PEP **322 Skills and Analysis of Individual Activities** (2 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of a variety of individual sports and activities. Three hrs of lec/labs a wk.

PEP **323 Skills and Analysis of Team Activities** (2 cr). Skill development and knowledge of teaching progressions, techniques, and analysis of a variety of team sports and activities. Three hrs of lec/labs a wk.

PEP **360 Motor Development and Control** (3 cr) (PEP 260). Overview of structural and environmental influences on development of motor behavior and control throughout the lifespan. Four hrs of lec-lab a wk. Prereq or coreq: Zool 120.

PEP **380 Measurement and Evaluation I** (2 cr). Construction, evaluation, and interpretation of tests used in evaluating physical and cognitive performance in physical education and sport science settings; basic statistical analysis. Accelerated class; three hrs of lec-lab a wk.

PEP **381 Measurement and Evaluation II** (1 cr). Grading systems and techniques used in teaching physical education; construction, evaluation, and interpretation of written tests used in evaluating cognitive performance in physical education. Accelerated course; three hrs of lec-lab a wk. Coreq: PEP 380.

PEP **400** (s) **Seminar** (cr arr). Prereq: perm.

PEP **403** (s) **Workshop** (cr arr). Prereq: perm.

PEP **404** (s) **Special Topics** (cr arr). Prereq: perm.

PEP **J405/J505** (s) **Professional Development** (cr arr). Cr earned may not be applied toward grad degree programs but may be accepted for fifth-yr certification. Professional development in physical education and sport professional personnel. Additional projects/assignments reqd for grad cr.

PEP **410 Elementary Physical Education Methods** (3 cr) (PEP 340). Current theory in curriculum and teaching methods with practical applications in lab and field experience. Four hrs of lec-lab a wk. Sixteen hours over an eight-week period will be required in the schools. Prereq: PEP 360 or perm.

PEP **J414/J514 Proseminar in Physical Education** (1 cr) (PEP 412). Course content and materials designed to prepare students for entry into the physical education teaching internship, the physical education teaching profession, and for continuing professional development; should be taken the semester before the teaching internship. Additional items including grant writing, writing for publication, and research review on professional and career development will be required for those registered for graduate credit.

PEP **418 Physiology of Exercise** (3 cr). Effects of physical activity on the circulatory, respiratory, and other systems. Two lec and one 2-hr lab a wk. Prereq: Zool 120 and 121.

PEP **420 Secondary Physical Education Methods** (4 cr) (PEP 320). Study and application of teaching methods and teaching behavior; structuring learning outcomes through performance objectives; lesson and unit planning. Includes a 27-hour lab—9 hrs in lab and 16 hrs required practicum spread over eight-week period in the schools. Prereq: Four professional activity series courses; prereq or coreq: PEP 360.

PEP **424 Physical Education for Special Populations** (2 cr). Adapting physical education programs to meet individual needs. Lec and lab. Prereq: PEP 360.

PEP **431 Practicum: Elementary and Secondary Student Teaching** (7 or 14 cr). Cr earned in this course may not be applied to total cr needed for a PE teaching major. Supervised student teaching at elementary and secondary levels. Double majors select the 7-cr option; all other students select 14 cr divided between elementary and secondary level. Graded P/F. Prereq: admission to teacher education, PEP 410, 420, ED 312, 314, cumulative GPA of 2.5, and perm of dept. (Submit application to director of clinical experiences in the College of Education by December 1 of school year before enrolling.)

PEP **440 Physical Education and Sport Management** (3 cr). Curriculum, programming, organization, and administration of school physical education and intramurals; field experience. Prereq: PEP 420 or perm.

PEP **460 Competition and Social Values** (3 cr). Competition as it is presently perceived in America today; what it should be and could be in the ethical domain.

PEP **J467/J567 Rcreational Therapy for People with Developmental Disabilities** (3 cr). See Rec J467/J567.

PEP **470 Sport and Athletic Business Ethics** (3 cr). Study of ethics, values, and capitalism as it focuses on global question of sport and athletics in America.

PEP **475 Moral Reasoning in Sport** (2 cr). See PEP J275/J475.

PEP **WS-J477/WS-J577 School Law and Athletics** (3 cr). WSU PEP 477/577.

PEP **480 Seminar in Sportsmanship: Moral Development** (3 cr). Philosophic and psychological study of moral development and resultant effect on moral value education in sport.

PEP **J493/ID-J593 Fitness Assessment and Prescription** (3 cr). WSU Kin 568. Development of skills in exercise testing, data interpretation, and prescription for health related fitness. Cr earned in PEP 593 by completion of additional projects/assignments. Two lec and 2 hrs of lab a wk. Prereq: PEP 418 or perm.

PEP **495** (s) **Practicum in Tutoring** (1 cr, max arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

PEP **497 Athletic Program Management** (3 cr). Scheduling, facilities, equipment, maintenance, budgeting, and public relations in the school.

PEP **498** (s) **Internship in Physical Education** (9 cr). Supervised field work. Graded P/F. Prereq: jr standing and Rec 445.

PEP **499** (s) **Directed Study** (cr arr). Prereq: perm.

PEP **500 Master's Research and Thesis** (cr arr).

PEP **501** (s) **Seminar** (cr arr). Prereq: perm.

PEP **502** (s) **Directed Study** (cr arr). Prereq: perm.

PEP **503** (s) **Workshop** (cr arr). Prereq: perm.

PEP **504** (s) **Special Topics** (cr arr). Prereq: perm.

PEP **505 Professional Development** (cr arr). See PEP J405/J505.

PEP **506 Foundations of Motor Skills** (3 cr). Application of psychological, kinesiological, and mechanical principles for an understanding of motor activity.

PEP **508 Motor Development** (3 cr). Study of changes in human movement associated with aging with emphasis on changes in children from 4 to 18 years of age. Two lec and 2 hrs of lab a wk.

PEP **WS511 Theories, Research, and Techniques in Counseling Psychology I** (3-4 cr). WSU CoPsy 511.

PEP **WS512 Theories, Research, and Techniques in Counseling Psychology II** (4 cr). WSU CoPsy 512.

PEP **514 Proseminar in Physical Education** (1 cr). See PEP J414/J514.

PEP **WS515 Ethics and Professional Problems in Counseling Psychology** (4 cr). WSU CoPsy 515.

PEP **518 Advanced Physiology of Exercise** (3 cr). Principles and methods essential to the experimental approach to physiological performance problems. Two lec and one lab a wk.

PEP **520 History of Physical Education and Sport** (3 cr). Cultural, philosophical, and comparative study of physical education and sport throughout civilization; emphasis on background influences on U.S. program.

PEP **WS521 Theoretical Foundations of Group Counseling** (3 cr). WSU CoPsy 518. History, philosophy, and theoretical foundations; the group counselor, members, and issues in group counseling. Prereq: PEP 512 .

PEP **ID&WS522 Pedagogy Applied to Health, Physical Education, Recreation, and Dance** (3 cr). WSU Kin 582. Study and analysis of teaching strategies and behaviors as they affect teaching and learning in physical education.

PEP **WS525 Counseling Diverse Populations** (3 cr). WSU CoPsy 525. Research and theories regarding the influence of culture, gender, and lifestyle on counseling processes; application of appropriate assessment/treatment strategies.. Prereq: PEP 512.

PEP **WS527 Individual Appraisal I** (3 or 4 cr). WSU CoPsy 527. Theoretical background and practical skills needed to administer, score, and interpret individual intelligence and structured personality tests; integration of nontest data. Prereq: EdAd 507 and perm.

PEP **WS541 Clinical and Experimental Hypnosis Seminar** (4 cr). WSU CoPsy 541. Clinical and experimental hypnosis, emphasizing applied research and clinical methods. Prereq: PhD student in counseling, educational experimental, or clinical psychology.

PEP **WS542 Cross-Cultural Research in Counseling and Assessment** (4 cr). WSU CoPsy 542. Cross-cultural research methods, concepts, and findings in counseling and assessment.

PEP **ID&WS544 Program Development** (3 cr). WSU Kin 585. Developing physical education and sport program; emphasis on new methods and curriculum content. Two days of field trips may be reqd.

PEP **550 Sport in Society** (3 cr). Sociological aspects of sport with emphasis on cultural impact of sport on society and vice versa; economics and politics of sports as they apply in American society.

PEP **WS551 Assessment and Evaluation of Motor Dysfunction** (3 cr). WSU Kin 551. Principles of assessment/evaluation of motor dysfunction; tools and techniques; administration, interpretation, and translation into program plans.

PEP **WS552 Neurological Impairment and Motor Behavior** (3 cr). WSU Kin 552. Neurophysiological components of normal and abnormal motor behavior as a result of neurological impairments/dysfunction in children through the aged.

PEP **WS553 Programming in Adapted Physical Activity** (3 cr). WSU Kin 553. Intensive experiences in planning and implementing physical activity programs to include disabled individuals in urban, rural, integrated, and segregated settings.

PEP **WS554 Sport and Individuals with Disabilities** (3 cr). WSU Kin 554. Issues and opportunities in sport for individuals with disabilities.

PEP **WS555 Doctoral Practicum in Counseling Psychology I** (4 cr). WSU CoPsy 551. Supervised experiences in the application of counseling psychology theory and techniques. Graded P/F. Prereq: PEP 512, 515.

PEP **WS556 Doctoral Practicum in Counseling Psychology II** (4 cr). WSU CoPsy 552. Supervised experiences in the application of counseling psychology theory and techniques. Graded P/F. Prereq: PEP 555.

PEP **560 Sport Psychology** (3 cr). Provides an understanding of how psychological factors influence performance and how simple and easy-to-use mental training techniques may be employed to enhance performance and enjoyment; using the *Coaches' Guide to Sport Psychology* and accompanying workbook, teachers/coaches will address such important psychological topics as peak performance, motivation, communication, leadership, self-confidence, concentration, stress management, imagery, goal setting, arousal control, and mental plans/performance routines; workbook exercises, case studies, and hands-on projects will teach mental training principles and help practitioners develop skills that they can successfully use to enhance performance with their students/athletes.

PEP **561 Motivation in Sport and Recreation** (3 cr). Practical, hands-on course designed to teach basics of motivation to physical educators, coaches, and recreation professionals; major achievement motivation theories and primary antecedents and consequences of motivated behavior; five major motivational enhancement strategies including goal setting, personal science, competition, feedback, and reinforcement; guidelines for maximizing effectiveness; analysis of applied motivation questions such as dropouts/burnouts, peak performance, exercise adherence, injury rehabilitation, increasing enjoyment, designing reward systems, and positive parental involvement.

PEP **WS564 Mechanical Analysis of Motor Activity** (3 cr). WSU Kin 564.

PEP **WS565 Advanced Educational Statistics** (3 cr). WSU EdPsy 565. Applications of inferential statistics in educational research and evaluation. Prereq: EdAd 507.

PEP **WS566 Biomechanics** (3 cr). WSU Kin 566.

PEP **567 Therapeutic Recreation for People with Developmental Disabilities** (3 cr). See Rec J467/J567.

PEP **570 Ethics in Physical Education and Sport** (3 cr). Problem solving approach to current ethical problems in leisure, physical education, and sport.

PEP **WS577 School Law and Athletics** (3 cr). See PEP J477/J577.

PEP **581 Research in Physical Activity, Theory, and Design** (1-6 cr, max 6). Principles of scientific inquiry; application to the study of physical activity; individual research projects.

PEP **583 Qualitative Research Methods** (3 cr). Qualitative research methods including the way data are collected, methods for assuring quality of data, techniques for organizing results, conclusions and interpretations. Two lec and 2 hrs of lab a wk.

PEP **WS584 Teaching Strategies** (3 cr). WSU Kin 583.

PEP **591 Philosophical Influences in Sport** (3 cr). Use of the philosophical process in analyzing problems and issues in leisure and sport.

PEP **WS592 Motor Learning** (3 cr). WSU Kin 591.

PEP **ID593 Fitness Assessment and Prescription** (3 cr). See PEP J493/J593.

PEP **597** (s) **Practicum** (cr arr). Application of theories and techniques. Graded P/F. Prereq: perm.

PEP **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

PEP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

PEP **600 Doctoral Research and Dissertation** (cr arr).

Physics

Rex Gandy, Chair, Dept. of Physics (311A Engineering/Physics Bldg. 83844-0903; phone 208/885-6380; e-mail henryw@uidaho.edu).

CREDIT LIMITATIONS: Phys 100 carries no credit after 111 or 211; Phys 111 carries no credit after 211; 112 carries no credit after 212.

Phys **100 Fundamentals of Physics** (4 cr). For students in nontechnical fields. May be used as core credit in J-3-b. Conceptual study of laws of nature and their application, including mechanics, heat, electricity and magnetism, light, and modern physics. Three lec and one 2-hr lab a wk.

Phys **103 General Astronomy** (3 cr). Nonmathematical descriptive and physical astronomy; development of astronomical thought; properties and evolution of the solar system, stars, galaxies, and the universe.

Phys **104 Astronomy Lab** (1 cr). Naked eye, telescopic, and photographic observations of constellations, stars, and planets. One 2-hr lab a wk; some evening meetings. Prereq or coreq: Phys 103.

Phys **111 General Physics I** (4 cr) (C). May be used as core credit in J-3-b. Mechanics, sound, and heat. Three lec, one recitation, and one 2-hr lab a wk. Prereq: Math 143.

Phys **112 General Physics II** (4 cr) (C) May be used as core credit in J-3-b. Electricity, magnetism, light, and modern physics. Three lec, one recitation, and one 2-hr lab a wk. Prereq: Phys 111.

Phys **211 Engineering Physics I** (4 cr; 5 cr Idaho Falls). May be used as core credit in J-3-b. Kinematics and dynamics, Newton's laws, work and energy, rotational dynamics, linear and angular momentum, collisions, static equilibrium, oscillations, gravity and central forces; 5-cr course also includes fluid dynamics, waves in elastic media, sound waves. Three lec, one recitation, and one 2-hr lab a wk (5-cr course available only in Idaho Falls: four lec and one 2-hr lab a wk). Prereq or coreq: Math 170.

Phys **212 Engineering Physics II** (4 cr; 5 cr Idaho Falls). May be used as core credit in J-3-b. Electric fields and potentials, magnetic fields, capacitance and inductance, DC and AC circuits, electromagnetic waves; 5-cr course also includes temperature, heat and thermodynamics, kinetic theory, geometric and physical optics. Three lec, one recitation, and one 2-hr lab a wk (5-cr course available only in Idaho Falls: four lec and one 2-hr lab a wk). Prereq: Phys 211; prereq or coreq: Math 175.

Phys **213 Engineering Physics III** (4 cr). Fluid dynamics, waves in elastic media, sound waves, temperature, heat and thermodynamics, kinetic theory, geometric and physical optics. Three lec, one recitation, and one 2-hr lab a wk. Prereq: Phys 211; prereq or coreq: Math 175.

Phys **301 Junior Physics Lab** (1 cr). Experimental techniques in modern physics, including optics, atomic, nuclear, and solid state physics; computer uses, error analysis, literature searches. One 3-hr lab a wk. Prereq: Phys 213 or perm.

Phys **310 Introduction to Relativity** (2 cr). Experimental basis for Einstein's Principles of Relativity; simultaneity, ultimate speed, lack of rigidity, time dilation, length contraction, velocity addition; paradoxes; relativistic energy and momentum, forces, qualitative connection between electric and magnetic fields; equivalence principle. Prereq: Phys 212, Math 175; recommended coreq: Phys 213.

Phys **315 Introduction to Modern Physics** (3 cr). Qualitative and quantitative description of fundamentals of quantum theory and of atomic, nuclear, elementary particle, and solid state physics. Prereq: Phys 212, 213; coreq; Math 275.

Phys **321-322 Analytical Mechanics (**3 cr). Statics; kinematics and dynamics of a particle; systems of particles; rigid continuous media; intro to Lagrange's equations. Prereq: Phys 112 or 212 or 213, and Math 275.

Phys **341-342 Electromagnetic Fields I-II** (3 cr). Theory using vector calculus; electrostatics; magnetostatics, electromagnetism, analysis of AC and DC circuits; Maxwell's equations; radiation and propagation of electromagnetic waves. Prereq: Phys 112 or 212 or 213, and Math 275.

Phys **351 Elementary Quantum Mechanics** (3 cr). Methods; one-dimensional harmonic oscillator, free particle, rectangular potential barrier, hydrogen atom, and perturbation theory. Prereq: Phys 315; coreq: Phys 321.

Phys **ID371 Mathematical Physics** (3 cr). WSU Phys 371. Same as Math 371. Mathematical techniques needed in upper-division physics courses, including vector analysis, matrices, Sturm-Liouville problems, special functions, partial differential equations, complex variables. Prereq: Phys 212, Math 275.

Phys **400** (s) **Seminar** (cr arr). Prereq: perm.

Phys **403** (s) **Workshop** (cr arr). Prereq: perm.

Phys **404** (s) **Special Topics** (cr arr). Prereq: perm.

Phys **411-412 Physical Instrumentation I-II** (3 cr). Methods and instruments used in experimental physics; electronic techniques; design problems in electronic measurement of physical quantities encountered in research. Two lec and one 3-hr lab a wk. Prereq: Phys 212 or 213 and Math 275 for Phys 411; Phys 411 for 412.

Phys **431 Thermodynamics and Kinetic Theory** (3 cr). Laws of thermodynamics, kinetic theory, and their application to topics in physics. Coreq: Phys 315.

Phys **443 Optics** (3 cr). Geometrical optics and photometry, interference, diffraction, double refraction, and polarization; application to modern optical instruments. Prereq: Phys 212 or 213, Math 175, and sr standing or perm.

Phys **444 Quantum Optics** (3 cr). Theory and application of lasers, optical spectrum analyzers, electro-optic modulators, and detectors; modern optical concepts and techniques; Gaussian beams and optical resonators, interaction of radiation and quantized matter, nonlinear optical effects, and laser spectroscopy. Prereq: Phys 212 or 213, Math 175, and sr standing or perm.

Phys **ID&WS463 Introduction to Solid State** (3 cr). WSU Phys 463. Physics of bulk matter; structure and types of solids, elastic and thermal properties of solids, electric and magnetic properties of solids, theory of conduction in metals and semiconductors. Prereq: Phys 315, 321.

Phys **ID&WS465 Nuclear and Particle Physics** (3 cr). WSU Phys 465. Structure of elementary particles, quark models; nuclear liquid drop, Fermi gas, shell and collective models; symmetries and cons laws; E and M, weak and strong interactions; accelerators and detectors. Prereq: Phys 315.

Phys **ID&WS485 Astrophysics** (3 cr). WSU Astr 435. Structure and evolution of stars and star systems; celestial mechanics; special and general relativity; cosmology. Prereq: Phys 103, 315, Math 275, or perm.

Phys **490 Research** (1-6 cr, max 6). Undergrad thesis. Prereq: jr standing in physics and perm of dept.

Phys **497** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Phys **499** (s) **Directed Study** (cr arr). Prereq: perm.

Phys **500 Master's Research and Thesis** (cr arr).

Phys **501** (s) **Seminar** (cr arr). Graded P/F. Prereq: perm.

Phys **502** (s) **Directed Study** (cr arr). Prereq: perm.

Phys **503** (s) **Workshop** (cr arr). Prereq: perm.

Phys **504** (s) **Special Topics** (cr arr). Prereq: perm.

Phys **511-512 Techniques of Experimental Physics** (3 cr). Development of experimental techniques and skills in active research fields; foundation for any field of physics. Nine hrs of lab a wk.

Phys **ID&WS521 Advanced Mechanics** (3 cr). WSU Phys 521. Classical mechanics; Lagrange's and Hamilton's principles, two-body problem, rigid body motion, special relativity, canonical transformation, Hamilton-Jacobi theory, small oscillations, and Lagrangian and Hamiltonian formulations for continuous systems and fields. Prereq: Phys 322.

Phys **ID&WS531 Statistical Mechanics** (3 cr). WSU Phys 534. Classical statistical mechanics of Maxwell, Boltzmann, and Gibbs; Maxwell-Boltzmann distribution law; Boltzmann's H-theorem, quantum statistical mechanics; Bose-Einstein and Fermi-Dirac statistics; application to problems in thermodynamics. Prereq: Phys 431, 551, or perm.

Phys **ID&WS541-ID&WS542 Electromagnetic Theory** (3 cr). WSU Phys 541-542. Includes Maxwell's equations, electrostatics, magnetostatics, currents and their interactions, general theory of emission, propagation and absorption of electromagnetic waves, boundary value problems, relativistic formulation of electrodynamics. Prereq: Phys 322, 342.

Phys **ID&WS551-ID&WS552; ID&WS553 Quantum Mechanics** (3 cr). WSU Phys 550, 551, 552. Phys 551-552: physical basis; Schroedinger wave formulation, Heisenberg matrix formulation, transformation theory, approximation methods, radiation theory, theory of scattering; application to atomic systems. Phys 553: relativistic quantum mechanics, second quantization field theory and application. Prereq: Phys 315, 322 for 551-552; 552 for 553.

Phys **ID&WS563 Solid State Physics** (3 cr). WSU Phys 563. Modern theory of metals, semiconductors, and insulators; crystal structure, thermal, electric, and magnetic properties of solids, band theory of solids, crystal imperfections, semiconductors, superconductivity, and photoconductivity. Prereq: Phys 342; prereq or coreq: Phys 551.

Phys **ID&WS566 Nuclear Physics** (3 cr). WSU Phys 565. Nuclei and nuclear interactions from a theoretical and experimental viewpoint, properties of nuclei, two-body problems, complex nuclei, nuclear spectroscopy, nuclear reactions, interaction of nuclei with radiation, nuclear models, theory of nuclear forces; topics in high energy physics; nucleus-nucleus collisions. Prereq: Phys 465, and 351 or 551.

Phys **ID&WS571-572 Mathematical Methods of Physics** (3 cr). WSU Phys 571. Methods and problems. Prereq: Phys 322 or perm.

Phys **ID573 Group Theory and Its Applications in Physics** (3 cr). WSU Phys 573. Intro to group theory with application to atoms, molecules, solids, elementary particles and nuclei. Prereq: Phys 551 or perm.

Phys **R585-R586 Fundamental Reactor Kinetics** (3 cr). Complex plane transformations, transfer functions for various systems, derivation of reactor kinetics equations; analysis of nuclear feedback systems; statistical control theory applied to nuclear systems. Prereq: perm.

Phys **R587 Reactor Physics for Engineers** (3 cr). Review of nuclear physics, nuclear fission, chain reaction, and reactor theory. Prereq: Math 310 or equivalent.

Phys **600 Doctoral Research and Dissertation** (cr arr).

Physiology

Faculty: Danny L. Barney, James E. Butler, Joseph G. Cloud, Donald L. Crawford, Mark DeSantis, Dennis G. Dolny, Robert B. Dwelle, Charlotte Eberlein, Victor P. Eroschenko, Esmaeil Fallahi, Jeffrey D. Griffin, Thomas C. Griggs, Stephen K. Herbert, Carl W. Hunt, Rolf L. Ingermann, Gale E. Kleinkopf, Marc J. Klowden, Michael B. Laskowski, Robert L. Mahler, Thomas B. McFadden, Thomas A. McKean, Rodney A. Mead, Richard A. Roeder, R. Francis Rosenzweig, R. Garth Sasser, Gerald T. Schelling, Kiran K. Shetty, Elizabeth South, Jeffrey C. Stark, Anne W. Sylvester, Donald C. Thill, Michael K. Thornton, Anthony Trent, Robert R. Tripepi, Dale O. Wilson, Jr., Gordon L. Woods.

Teaching and research programs in physiology are available in several colleges and departments of the university. Master's and doctoral programs with concentration in animal or plant physiology are available through the Departments of Animal and Veterinary Sciences, Biological Sciences, and Plant, Soil, and Entomological Sciences.

The following courses are available for those students interested in animal and plant physiology and related areas. Full course descriptions are found under the designated departmental/program sections.

ANIMAL PHYSIOLOGY

AVS **218 Artificial Insemination and Pregnancy Detection** (2 cr).

AVS **371 Anatomy and Physiology** (4 cr).

AVS **J411/J511 Microbiology and Physiology of Ruminant Nutrition** (3 cr).

AVS **ID&WS413 Physiology of Lactation** (3 cr).

AVS **J430/J530 Advanced Topics in Embryo Physiology** (3 cr).

AVS **J451/J551 Endocrine Physiology** (3 cr).

AVS **452 Physiology of Reproduction** (4 cr).

AVS **514 Physiology of Nonruminant Nutrition** (3 cr).

AVS **ID&WS520 Seminar in Animal Physiology** (1 cr, max arr).

AVS **WS526 Advanced Reproduction** (4 cr).

AVS **ID&WS560 Domestic Animal Growth and Development** (3 cr).

Ent **J484/J584 Insect Anatomy and Physiology** (4 cr).

MedS **ID&WS512 Basic Mechanisms in Cellular Physiology** (4 cr).

MedS **ID&WS532 Nervous System** (5 cr).

MMBB **J460/J555 Microbial Physiology** (3 cr).

MMBB **560 Advanced Microbial Physiology** (3 cr).

PEP **418 Physiology of Exercise** (3 cr).

PEP **J493/J593 Fitness Assessment and Prescription** (3 cr).

PEP **518 Advanced Physiology of Exercise** (3 cr).

Psyc **372 Physiological Psychology** (3 cr).

Zool **121 Human Physiology** (4 cr).

Zool **324 Comparative Vertebrate Anatomy** (4 cr).

Zool **ID-J411/ID-J511 Comparative Vertebrate Reproduction** (3 cr).

Zool **J414/J514 Cell Physiology** (3 cr).

Zool **J417/J517 Endocrine Physiology** (3 cr).

Zool **J423/J523 Comparative Vertebrate Physiology** (4 cr).

Zool **427 Vertebrate Histology and Organology** (4 cr).

Zool **J472/J572 Developmental Biology** (3 cr).

Zool **473 Comparative Embryology Lab** (1 cr).

Zool **WS505 Generation, Degeneration, and Regeneration in Nervous System** (2 cr).

PLANT PHYSIOLOGY

Bot **311 Plant Physiology** (4 cr).

Bot **512 Plant Growth Substances** (3 cr).

MMBB **J486/J586 Plant Biochemistry** (3 cr).

PlSc **WS310 Pomology** (3 cr).

PlSc **401 Crop Physiology** (3 cr).

PlSc **ID-J410/ID-J510 Biology of Weeds** (3 cr).

PlSc **WS-J418/WS-J518 Post-Harvest Biology and Technology** (3 cr).

PlSc **WS535 Molecular Genetics of Plant and Pathogen Interactions** (2 cr).

PlSc **ID&WS539 Herbicide Fate and Mode of Action** (4 cr).

Soil **446 Soil Fertility** (1-3 cr, max 3).

Soil **WS541 Soil-Plant-Microbial Interaction** (3 cr).

Plant Science

Michael J. Weiss, Head, Dept. of Plant, Soil, and Entomological Sciences (242 Iddings Wing, Ag. Sc. Bldg 83844-2339; phone 208/885-6277; pseshead@uidaho.edu).

PlSc **102 The Science of Plants in Agriculture** (3 cr). Principles of structure, biology, and management of agronomic and horticultural crops; interaction of crop plants and cropping systems with environment; current issues related to plant science. Two lec and one 2-hr lab a wk.

PlSc **202 Plant Propagation** (3 cr). Sexual and asexual propagation techniques of herbaceous and woody ornamental plants; propagation methods covered including seed, cuttings, layering, grafting, and cloning/tissue culture. Two lec and one 3-hr lab a wk. Prereq: PlSc 102 or Biol 201, or perm. (Alt/yrs)

PlSc **210 Plant Diseases** (1-3 cr, max 3). May not be used for major credit by majors in plant science. Introduction to plant diseases and plant pathology for general audiences on and off campus; emphasis on the cause, development, diagnosis, and control of common diseases of field crop, garden, and woodlot plants.

PlSc **212 Master Gardener** (1-3 cr, max 3). Basic horticultural skills required for home gardeners and landscapers, including soil, water, and fertility management, composting, pest and disease identification and management, vegetable and fruit culture, ornamentals, plant propagation, and lawn care. Graded P/F. Field trips.

PlSc **WS234 Controlled Environments for Horticultural Production** (3 cr). WSU Hort 234.

PlSc **WS301 Turfgrass Culture** (3 cr). WSU CropS 301.

PlSc **308 Forage and Grassland Management** (3 cr). Principles of biology, management, and use of cultivated hay and pasture plants; plant-animal-environment interactions in forage-livestock systems; design of sustainable grassland production systems. Two lec and one 2-hr lab a wk. Prereq: PlSc 102 or equivalent, or perm.

PlSc **WS310 Pomology** (3 cr) (PlSc WS461). WSU Hort 310. Relationships between physiological processes in fruit trees and management decisions necessary for successful commercial production. One 2-day field trip. (Alt/yrs)

PlSc **WS311 Pomology Laboratory** (1 cr). WSU Hort 311. Cultural practices and management of deciduous treefruit production.

PlSc **WS313 Viticulture and Small Fruits** (3 cr). WSU Hort 313.

PlSc **WS320 Olericulture—Commercial Vegetable Crops** (3 cr). WSU Hort 320.

PlSc **WS321 Olericulture Lab—Commercial Vegetable Crops** (1 cr). WSU Hort 321.

PlSc **338 Weed Control** (3 cr). Nature and scope of weed problems, identification and biology of weeds, principles, theory, and practice of mechanical, chemical, and biological control of weeds; legal considerations; integration of methods into functional management systems. Two lec and one 2-hr lab a wk. Prereq: PlSc 102 or equivalent, or perm.

PlSc **ID340 Nursery Management** (3 cr). WSU Hort 340. Management of commercial nurseries from plant propagation through sale of the plants. (Alt/yrs)

PlSc **ID341 Nursery Management Laboratory** (1 cr). WSU Hort 341. Lab study relevant to PlSc 340. Experiments on and demonstrations of different practices used in nurseries. One 2-hr lab a wk; one 1-day field trip. Coreq: PlSc 340.

PlSc **WS360 World Agricultural Systems** (3 cr). WSU CropS and SoilS 360. Study of agro-environmental characteristics of world agriculture; historical and contemporary features of world food production. Prereq: 2 semesters physical or biological sciences.

PlSc **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

PlSc **399** (s) **Directed Study** (1-2 cr, max 2). Prereq: perm.

PlSc **400** (s) **Seminar** (1 cr). Prereq: perm.

PlSc **401 Crop Physiology** (3 cr). Application of physiology to crop management. Prereq: Bot 311. (Alt/yrs)

PlSc **404** (s) **Special Topics** (cr arr). Prereq: perm.

PlSc **405 Plant Pathology** (4 cr). Biology of diseases and disorders of crop, forest, and ornamental plants, with emphasis on plant-microbe interactions and on disease cause, development, diagnosis, and control. Three 1-hr lec and one 2-hr lab a wk. Prereq: PlSc 102 or Biol 203, and MMBB 250 (or perm).

PlSc **407 Field Crop Production** (3 cr). Management and use of crops in Idaho and the Northwest.

PlSc **408 Cereal Science** (3 cr). Crop history and biology of major cereal crops, emphasizing cool season cereals. Prereq: Biol 201 or perm.

PlSc **409 Scientific Photography and Data Presentation** (1 cr). Principles and techniques for photographic documentation and presentation of data; seven technique areas: field photography, aquarium photography, museum photography, photocopy, microphotography, insect photography, and computer graphics. Prereq: Own or have access to a 35mm SLR camera. (Alt/yrs)

PlSc **ID-J410/ID-J510 Biology of Weeds** (3 cr). WSU CropS 413/513. Biology, ecology, and physiology of weeds with emphasis on crop and weed interactions. Requirements for grad cr include comprehensive term paper and class presentation on weed-crop interaction. Two lec and one 3-hr lab a wk. Prereq: Bot 311 or perm. (Alt/yrs)

PlSc **WS-J412/WS-J512 Advanced Cropping Systems** (3 cr). WSU CropS and Pl P 403/503. Modern cropping systems: concepts of crop health management within a cropping systems context; diagnosis and management of biotic and abiotic constraints to crop production; interactions of these constraints; concepts of biological control; integration of biological, physical, and chemical approaches to pests and disease control: role of technological innovations; impact of national and international statutes; agreements and treaties on sustainable growth of crop production. Additional projects/assignments reqd for grad cr.

PlSc **WS-J418/WS-J518 Post-Harvest Biology and Technology** (3 cr). WSU Hort 418/518.

PlSc **WS-J420/WS-J570 Potato Physiology and Production Technology** (2 cr). WSU Hort 420/520. (Alt/yrs)

PlSc **WS-J421/WS-J521 General Mycology** (4 cr). WSU Pl P 421/521. (Alt/yrs)

PlSc **WS-J422/WS-J522 Genetic and Molecular Aspects of Plant Reproduction** (2-3 cr). WSU Hort 405/505. (Alt/yrs)

PlSc **WS-J430/WS-J530 Ornamental Plant Production I** (3 cr). WSU Hort 438/538. Fall and winter production practices of greenhouse and nursery crops. Field trip.

PlSc **WS-J431/WS-J531 Ornamental Plant Production II** (3 cr). WSU Hort 439/539. Production requirements for spring greenhouse and nursery crop; garden center management considerations. Field trip.

PlSc **J433/ID&WS-J533 Experimental Approaches to Plant Regeneration** (3 cr). WSU Hort/CropS 533. Laboratory-oriented course involving tissue culture techniques used to regenerate herbaceous and woody plant species from organs or tissues. Requirements for grad cr include completion of a special project and report. One lec and 5 hrs of lab a wk. Prereq: Bot 311 and PlSc 202 or Bot J401/J510, or perm. (Alt/yrs)

PlSc **438 Pesticides in the Environment** (3 cr). See Soil 438.

PlSc **J446/ID-J546 Plant Breeding** (3 cr). WSU CropS 546. Application of genetic principles to improvement of crop plants. Grad students reqd to complete additional term paper. Prereq: Gene 314 or equiv. (Alt/yrs)

PlSc **464 Landscape Maintenance** (3 cr). Use and culture of landscape plants to enhance the environment. Two lec and one 2-hr lab a wk; one 1-day field trip. Prereq: PlSc 102 or Biol 203 or perm; prereq or coreq: Soil 205 and LArc 288, or perm. (Alt/yrs)

PlSc **WS469 Seed Production** (3 cr). WSU CropS/Hort 469. Crops indigenous to the Northwest; seedhouse operations and seed regulation. Prereq: perm. (Alt/yrs)

PlSc **480 Field Trip** (1 cr, max 2). Five-day field trip to production areas. Prereq: perm.

PlSc **ID-J490/J590 Potato Science** (1-3 cr, max 3). WSU Hort 490. History, botanical characteristics, seed physiology and production, plant population, physiology of growth, and pest management; factors influencing maturation, harvest, yield, grade, bruise control, storage, and quality maintenance; economics of production and research on a global basis. Requirements for grad cr include comprehensive term paper and class presentation on selected topic.

PlSc **499** (s) **Directed Study** (cr arr). Prereq: perm.

PlSc **500 Master's Research and Thesis** (cr arr).

PlSc **501** (s) **Seminar** (cr arr). Prereq: perm.

PlSc **502** (s) **Directed Study** (cr arr). Prereq: perm.

PlSc **504** (s) **Special Topics** (cr arr). Prereq: perm.

PlSc **WS506 Diseases of Plants** (4 cr). WSU Pl P 551.

PlSc **WS507 Plant Transmission Genetics** (3 cr). WSU CropS 504.

PlSc **WS508 Advanced Crop Physiology I** (3 cr). WSU CropS 508. (Alt/yrs)

PlSc **WS509 Advanced Crop Physiology II** (3 cr). WSU CropS 509. (Alt/yrs)

PlSc **ID510 Biology of Weeds** (3 cr). See PlSc J410/J510.

PlSc **WS511 Viruses and Virus Diseases of Plants** (4 cr). WSU Pl P 511. (Alt/yrs)

PlSc **WS512 Advanced Cropping Systems** (3 cr). See PlSc J412/J512.

PlSc **WS514 Phytobacteriology** (4 cr). WSU Pl P 514. (Alt/yrs)

PlSc **WS515 Molecular Approaches for Improving Crop Quality and Adaptation** (3 cr). WSU CropS 505. (Alt/yrs)

PlSc **WS518 Post-Harvest Biology and Technology** (3 cr). See PlSc J418/J518.

PlSc **ID520 Plant Cytogenetic Techniques** (3 cr). WSU CropS 520. Techniques to study plant genes and chromosomes. Two lec and 4 hrs of lab a wk. Prereq: Gene 314 or equivalent. (Alt/yrs)

PlSc **WS521 General Mycology** (4 cr). See PlSc J421/J521.

PlSc **WS522 Genetic and Molecular Aspects of Plant Reproduction** (2-3 cr). See PlSc J422/J522.

PlSc **WS530 Ornamental Plant Production I** (3 cr). See PlSc J430/J530.

PlSc **WS531 Ornamental Plant Production II** (3 cr). See PlSc J431/J531.

PlSc **ID&WS533 Experimental Approaches to Plant Regeneration** (3 cr). See PlSc J433/J533.

PlSc **WS535 Molecular Genetics of Plant and Pathogen Interactions** (2 cr). WSU Pl P 535. (Alt/yrs)

PlSc **ID&WS539 Herbicide Fate and Mode of Action** (4 cr). WSU CropS 539. Fate of herbicides in plants, soil, and water; physiological and biochemical mode of herbicide action; mechanisms of herbicide resistance. Prereq: PlSc 338, Bot 311, and MMBB 380 or perm. (Alt/yrs)

PlSc **ID541 Analytical Methods for Phytopathological Research** (3 cr). WSU Pl P 541. Survey of various techniques used in current research in plant pathology; historical background, principles, and current applications. Two 1-hr lec and one 3-hr lab a wk. Prereq: PlSc 405, MMBB 250 or equiv, or perm. (Alt/yrs)

PlSc **ID546 Plant Breeding** (3 cr). See PlSc J446/J546.

PlSc **ID547 Biometrics for Plant Scientists** (3 cr). WSU CropS 547. Use of biometrical techniques in research with particular emphasis on designing, analyzing, and interpreting agricultural and biological experiments; application of statistical methods to biological experiments and problems that may be encountered when applying these techniques to biological systems. Prereq: PlSc 102 and Stat 401 or equiv. (Alt/yrs)

PlSc **WS557 Herbicides: Toxicology and Mode of Action** (1 cr). WSU CropS and Ent 557. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and insect physiology. (Alt/yrs)

PlSc **WS558 Pesticide Topics** (1 cr). WSU Entom 558. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism. Prereq: organic chemistry, biochemistry, and plant, insect, or animal physiology. (Alt/yrs)

PlSc **WS570 Potato Physiology and Production Technology** (2 cr). See PlSc J420/J570.

PlSc **WS571 Plant Molecular Genetics** (3 cr). WSU GenCB 570. (Alt/yrs)

PlSc **590 Potato Science** (3 cr). See PlSc J490/J590.

PlSc **WS592** (s) **Advanced Topics in Cell Biology** (1-3 cr, max 7). WSU GenCB 592.

PlSc **597** (s) **Practicum** (cr arr). Prereq: perm.

PlSc **598** (s) **Internship** (cr arr). Prereq: perm.

PlSc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

PlSc **600 Doctoral Research and Dissertation** (cr arr).

Political Science

Donald W. Crowley, Chair, Dept. of Political Science and Public Affairs Research (205 Admin. Bldg. 83844-3165; phone 208/885-6328).

PREREQUISITES: Two-semester courses in this field may be taken in either order. Students may enroll in second-semester courses without having had the first.

PolS **101 Introduction to Political Science and American Government** (3 cr) (C). May be used as core credit in J-3-e. Introduction to the study of politics focusing on basic concepts, processes, and institutions; emphasis on government and politics of the U.S. examined in comparative perspective; probable topics include nature of constitutional democracy, ideology, parties and elections, and formation of public policy.

PolS **C102 U.S. Government: Policies and Issues** (3 cr). Survey of major policies and issues conflicts in the U.S.

PolS **C152 Politics and Pollution** (1 cr). Political, government, and administrative aspects of overcoming air, water, and other types of pollution of our environment.

PolS **200** (s) **Seminar** (cr arr). Prereq: perm.

PolS **203** (s) **Workshop** (cr arr). Prereq: perm.

PolS **204** (s) **Special Topics** (cr arr). Prereq: perm.

PolS **205 Introduction to Comparative Politics** (3 cr). Basic structures, patterns, and sociocultural environment of foreign political systems; includes case studies of the government and politics in selected countries.

PolS **235 Political Research Methods and Approaches** (3 cr) (PolS 435). Introduction to the study of politics, including scope of the discipline, principal fields, research design, and methods of political research and analysis.

PolS **237 International Politics** (3 cr). Survey of approaches used to describe and explain conflict and cooperation among states in the international system; special emphasis on games of strategic interaction.

PolS **275 American State and Local Government** (3 cr) (C). American state and local politics from a comparative perspective; focus on parties, interest groups, voting behavior, legislative and executive government, judiciary, intergovernmental relations, and public policies.

PolS **299** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

PolS **ID380 Canadian Political System** (3 cr). WSU Pol S 380. General examination of Canadian cultural identity, constitutional principles, federalism, govt structure, political process, and electoral behavior.

PolS **381 Western European Politics** (3 cr). Examination of political processes in Western European parliamentary systems; topics include parties and elections, coalition formation and dissolution, public policy, and the dynamics of the European Union..

PolS **400** (s) **Seminar** (cr arr). Prereq: perm.

PolS **403** (s) **Workshop** (cr arr). Prereq: perm.

PolS **404** (s) **Special Topics** (cr arr). Prereq: perm.

PolS **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

PolS **J425/J525 History of Political Philosophy I** (3 cr). Perennial problems of politics examined through study of seminal authors of classical antiquity (Plato, Aristotle, Cicero); medieval confrontation of theology with classical political philosophy (Augustine, Aquinas, Marsilius). Additional projects/assignments reqd for grad cr.

PolS **J426/J526 History of Political Philosophy II** (3 cr). Foundations and development of modern liberalism; analysis of its characteristic goals, and democratic, socialist, and communitarian critics of the project; study of authors including Hobbes, Locke, Rousseau, Marx, and contemporary theorists such as Rawls. Additional projects/assignments reqd for grad cr.

PolS **J428/J528 American Political Thought** (3 cr). Major themes and debates in the American search for political self-understanding; topics include representative democracy, religion and politics, the frontier and its legacy, and individualism vs. communitarian claims; study of original sources—Founding Fathers, Thoreau, Lincoln, Populists—and contemporary implications. Additional projects/assignments reqd for grad cr.

PolS **J429/J529 Contemporary Political Ethics** (3 cr). Current controversies concerning status and substance of ethical claims about deception, violence, coercion, and economic justice in politics and public action. Additional projects/assignments reqd for grad cr.

PolS **430 Political Participation Internship** (1-9 cr, max 9). Directed student internship as a participant-observer in the political process, work during a campaign with a candidate, party, or interest group. Graded P/F. Prereq: perm.

PolS **431 American Political Parties and Elections** (3 cr). Development and present character of American political parties and of electoral system, functions of parties in periods of relative consensus and of critical choice regarding fundamental principles, party reform, and future prospects for party system.

PolS **432 American Congress** (3 cr). Roles and functions of Congress in the American political system, theories of representation, recruitment of legislators, Congressional organization and behavior, power structure, relationship to the executive, courts, interest groups, and public.

PolS **433 American Political Culture** (3 cr). Relation of public opinion and political action and affiliation to broad economic, social, religious, and intellectual developments.

PolS **J437/J537 American Presidency** (3 cr). Roles, power, and functions of the presidency; relationships with other structures and institutions in the U.S. political system. Additional projects/assignments reqd for grad cr.

PolS **J438/J538 Conduct of American Foreign Policy** (3 cr). Analysis of how key decision makers, such as the President and Congress, convert inputs from the international, national, and societal systems into foreign policy outputs. Additional projects/assignments reqd for grad cr.

PolS **J439/J539 Public Policy** (3 cr). Processes by which domestic policies are formulated and administered; analysis of intentional and unintentional impact of these policies on society. Additional projects/assignments reqd for grad cr.

PolS **J440/J540** (s) **International Organizations and International Law** (3 cr). Same as Mrtn 496. League of Nations, United Nations, and role of international law in international relations; the UN's contribution to international security and economic and social development. Additional projects/assignments reqd for grad cr.

PolS **444 Investigating International Relations** (3 cr). Topics range from investigations into national uses of violence, homicide, and drug use across nation states, the containment of international diseases, international poverty, population growth rates, economic development, etc.; emphasis on theory development, appropriate research techniques, and techniques for drawing appropriate conclusions and policy recommendations.

PolS **J449/J549 World Politics and War** (3 cr). A critical analysis of several competing theories that explain why wars occur; some focus on the attempts to control and eliminate warfare as a tool of international diplomacy. Additional projects/assignments reqd for grad cr. Cr not granted for both PolS J449/J549 and Mrtn 490.

PolS **451 Public Administration** (3 cr) (C). Environment of public administration, politics of organizations, public decision-making, public relations, leadership, personnel administration, financial administration, administration ethics; related topics.

PolS **J452/ID-J552 Administrative Law and Regulation** (3 cr). WSU Pol S 552. Legal and judicial constraints on administration action, rule-making, adjudication, and other modes of administrative action. Additional projects/assignments reqd for grad cr.

PolS **J453/J553 Public Management Techniques** (3 cr). Emphasizes management styles and the empirical basis for decision; focus on conflict management through control or participatory strategies, and the acquisition and analysis of management information. Additional projects/assignments reqd for grad cr.

PolS **J454/J554 Public Organization Theory** (3 cr). Organization theory and behavior in public and nonprofit sector, organization structure and environment, individual behavior in organizations. Additional projects/assignments reqd for grad cr.

PolS **458 Management Internship** (1-9 cr, max 9). Directed internship in an agency of federal, state, or local government or special projects involving federal, state, or local government. One cr for each week of internship work. Graded P/F. Prereq: perm.

PolS **459 Legislative Internship** (1-9 cr, max 9). Directed internship in a national, state, municipal, or corporate legislative body. Supervised work experience. Report required. Graded P/F. Prereq: perm.

PolS **460 Law and Society** (3 cr). Overview of legal reasoning and functions of law in society; emphasis on capacity of law to affect social change as well as ways in which law responds to social change.

PolS **461 Western Environmental Legal History** (3 cr). Examination of the role of the environment in history; focus on the West, its resources and the role of the law; content will vary depending on interests of instructor and students.

PolS **J462/J562 Natural Resource Policy** (3 cr). Political and institutional context for making natural resource policy; emphasis on interaction between private and public sectors and the federal, state, and tribal governments, including an examination of topical issues in natural resource politics. Additional projects/assignments reqd for grad cr.

PolS **J464/J564 Politics of the Environment** (3 cr). Political factors that influence formation, implementation, and impact of public policies aimed at protecting the environment. Additional projects/assignments reqd for grad cr.

PolS **465 Politics and the Economy** (3 cr). Analysis of factors that influence political institutions in making economic policy.

PolS **J467/J567 Constitutional Law** (3 cr). The Supreme Court as a constitutional policymaker; federal jurisdiction; constitutional principles concerning judicial review, federalism, implied powers, separation of powers, and due process. Additional projects/assignments reqd for grad cr.

PolS **J468/J568 Civil Liberties** (3 cr). The Supreme Court and its role in protecting civil liberties; freedom of speech, press, and religion; due process, the Bill of Rights, and its application to the states; criminal justice. Additional projects/assignments reqd for grad cr.

PolS **J469/J569 The Judicial Process** (3 cr). Judicial and legal processes, court structure, procedures; judicial behavior and decision-making; selection of judges. Additional projects/assignments reqd for grad cr.

PolS **J471/J571 Intergovernmental Relations** (3 cr). Analysis of fiscal and administrative interdependencies among governmental units in the U.S., with an emphasis on public policies. Additional projects/assignments reqd for grad cr.

PolS **J472/J572 Local Government Politics and Administration** (3 cr). Politics, structure, and problems of American cities and other local governments; focus on the urban political economy, the fiscal and social challenges, and the links between public and private sectors; changing social and political functions of American cities and metropolitan fragmentation. Additional projects/assignments reqd for grad cr.

PolS **J480/J580 Politics of Development** (3 cr). Role of the state in development, political economy of change, transition to democracy in the Third World, problems of ethnic conflict, overpopulation, and poverty. Additional projects/assignments reqd for grad cr.

PolS **J482/J582 Latin American Politics** (3 cr). Comparative description and analysis of distinctive Latin American political institutions and processes; cultural influences; basic institutions; dependency and development; authoritarianism and democratization; international dimensions. Additional projects/assignments reqd for grad cr.

PolS **J483/J583 Middle Eastern Politics** (3 cr). Comparative analyses of political processes in Middle East and North Africa, Islam and politics, role of the military, and Arab-Israeli conflict. Additional projects/assignments reqd for grad cr.

PolS **ID-J484/J584 Politics of India and the Subcontinent** (3 cr). WSU Asia 484. Comparative analysis of the political process in India, Pakistan, Bangladesh, Sri Lanka, and Nepal; historical development; cultural and social influences on politics; political institutions and behavior. Additional projects/assignments reqd for grad cr.

PolS **J485/J585 African Politics** (3 cr). Comparative description and analysis of politics of Africa south of the Sahara, colonialism, nationalism, and economic problems; politics of selected African countries examined including South Africa and apartheid. Additional projects/assignments reqd for grad cr.

PolS **J487/J587 Political Violence and Revolution** (3 cr). Survey of the dominant theories attempting to understand the conditions under which humans rebel against their government; from political demonstrations and riots to terrorism to revolution; special emphasis given to the revolutions in Iran and Vietnam. Additional projects/assignments reqd for grad cr.

PolS **495 Senior Seminar in Political Science** (3 cr). Capstone seminar required of all political science majors in their senior year. Focuses on developing and applying research and conceptual skills, oral and written presentation of research prospectus and final research paper. Prereq: PolS 235 and senior standing.

PolS **499** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

PolS **500 Master's Research and Thesis** (cr arr). Graded P/F.

PolS **501** (s) **Seminar** (cr arr). Areas normally offered incl U.S. politics, U.S. foreign policy, African and Asian politics, community power and politics, U.S. political thought, public law, public administration, and political development. One 2-day field trip is authorized for the seminar in public administration. Prereq: perm.

PolS **502** (s) **Directed Study** (cr arr). Prereq: perm.

PolS **503** (s) **Workshop** (cr arr). Prereq: perm.

PolS **504** (s) **Special Topics** (cr arr). Prereq: perm.

PolS **525 History of Political Philosophy I** (3 cr). See PolS J425/J525.

PolS **526 History of Political Philosophy II** (3 cr). See PolS J426/J526.

PolS **528 American Political Thought** (3 cr). See PolS J428/J528.

PolS **529 Contemporary Political Ethics** (3 cr). See PolS J429/J529.

PolS **WS530 Scope of Political Science** (3 cr). WSU Pol S 501.

PolS **WS531 Research Methods in Political Science** (3 cr). WSU Pol S 531.

PolS **537 American Presidency** (3 cr). See PolS J437/J537.

PolS **538 Conduct of American Foreign Policy** (3 cr). See PolS J438/J538.

PolS **539 Public Policy** (3 cr). See PolS J439/J539.

PolS **540 International Organizations and International Law** (3 cr). See PolS J440/J540.

PolS **549 World Politics and War** (3 cr). See PolS J449/J549.

PolS **551 Seminar in Public Administration** (3 cr). Review of significant issues and methodological problems in the field.

PolS **ID552 Administrative Law and Regulation** (3 cr). See PolS J452/ID-J552.

PolS **553 Public Management Techniques** (3 cr). See PolS J453/J553.

PolS **554 Public Organization Theory** (3 cr). See PolS J454/J554.

PolS **ID555 Seminar in Administrative Theory** (3 cr). WSU Pol S 552. Major writers in administrative theory and concepts such as leadership, supervision, authority, decision-making, and human relations. (Alt/yrs)

PolS **556 Governmental Policy and Program Analysis** (3 cr). Techniques used to analyze policy alternatives and to evaluate program; developing program objectives, management by objectives, productivity analysis, program evaluation, and policy analysis.

PolS **557 Governmental Budgeting** (3 cr). Theory and practice of budgeting in a political environment; focus on potentials and limitations of various budgeting systems, particular viz the federal experience.

PolS **562 Natural Resource Policy** (3 cr). See PolS J462/J562.

PolS **564 Politics of the Environment** (3 cr). See PolS J464/J564.

PolS **567 Constitutional Law** (3 cr). See PolS J467/J567.

PolS **568 Civil Liberties** (3 cr). See PolS J468/J568.

PolS **569 The Judicial Process** (3 cr). See PolS J469/J569.

PolS **571 Intergovernmental Relations** (3 cr). See PolS J471/J571.

PolS **572 Local Government Politics and Administration** (3 cr). See PolS J472/J572.

PolS **575 Public Personnel Administration** (3 cr). Personnel administration in public agencies; history of the personnel and merit systems; recruitment; selection, training, and evaluation of administrators; collective bargaining and political activity in public service; personnel administration and democracy.

PolS **580 Politics of Development** (3 cr). See PolS J480/J580.

PolS **582 Latin American Politics** (3 cr). See PolS J482/J582.

PolS **583 Middle Eastern Politics** (3 cr). See PolS J483/J583.

PolS **584 Politics of India and the Subcontinent** (3 cr). See PolS J484/J584.

PolS **585 African Politics** (3 cr). See PolS J485/J585.

PolS **587 Political Violence and Revolution** (3 cr). See PolS J487/J587.

PolS **WS589 Seminar: International Politics** (3 cr). WSU Pol S 589.

PolS **598** (s) **Internship** (cr arr). Prereq: perm.

PolS **600 Doctoral Research and Dissertation** (cr arr). Graded P/F.

Professional-Technical Education

James M. Cassetto, Interim Director, Div. of Adult, Counselor, and Technology Education (210 Educ. Bldg. 83844-3083; phone 208/885-6556).

MAJORS: Professional-technical education majors fulfill their major requirements from the courses listed in this section.

RELATED FIELDS: For those course offerings in professional-technical education, see agricultural education, counseling, and family and consumer sciences.

PTE **200** (s) **Seminar** (cr arr). Prereq: perm.

PTE **203** (s) **Workshop** (cr arr). Prereq: perm.

PTE **204** (s) **Special Topics** (cr arr). Prereq: perm.

PTE **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

PTE **270 Technical Competence I** (1-10 cr, max 10) (VoEd 270). Technical competence is gained from experience in areas of concentration related to the bachelor of science degree in professional-technical education or technology. Grades for successful completion of PTE/ITED 270, 370, and 470 will be transcripted as P (pass) during the student's last semester and completion of all degree requirements. Prereq: 9 cr in residence in professional-technical education.

PTE **299** (s) **Directed Study** (cr arr). Prereq: perm.

PTE **306 Preservice for New Professional-Technical Teachers** (3 cr) (VoEd 306). Fundamental skills necessary for new teachers in secondary and postsecondary schools to be successful in meeting students.

PTE **307 Inservice for New Professional-Technical Teachers** (3 cr) (VoEd 307). Resolution of common problems faced by new teachers through seminars and observations/evaluations/perceptions by UI preceptor; course meets state certification requirements for 30 hrs of inservice for vocational specialist certification. Prereq: perm.

PTE **J351/J551 Principles and Philosophy of Professional-Technical Education** (3 cr) (C) (VoEd J351/J551). See ACTE J351/J551.

PTE **370 Technical Competence II** (1-10 cr, max 10) (VoEd 370). See PTE 270. Prereq: completion of junior year in professional-technical education.

PTE **400** (s) **Seminar** (cr arr). Prereq: perm.

PTE **403** (s) **Workshop** (cr arr). Prereq: perm.

PTE **404** (s) **Special Topics** (cr arr). Prereq: perm.

PTE **J405/J505 Professional Development** (cr arr). Cr earned in this course will not be accepted toward grad degree programs. Professional development and enrichment. Additional projects/assignments reqd for grad cr.

PTE **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

PTE **J418/J518 Learning Styles** (3 cr) (VoEd J418/J518). See ACTE J418/J518.

PTE **420 Evaluation in Professional-Technical Education** (3 cr) (VoEd 420). Methods and techniques; construction and use of objective tests, performance tests, rating scales, check lists.

PTE **J426/J526 Instructional Design and Curriculum** (3 cr) (VoEd J426/J526). See ACTE J426/J526.

PTE **450 Industrial Safety** (3 cr) (VoEd 450). Same as ITED 450. Organization and administration of safety programs in industry and professional-technical education laboratories; materials, research literature, methods, and techniques for industrial safety education.

PTE **451 School Lab Planning and Administration** (3 cr) (VoEd 451). Same as ITED 451. For those in or entering occupational education who seek a competency-based approach to planning, organizing, and managing a school teaching lab/shop.

PTE **453 Task Analysis** (1 cr) (VoEd 453). Intro to task analysis methods, techniques, and procedures.

PTE **464 Career Guidance** (3 cr) (VoEd 464). Same as CASP 464. Designed for career development counselors and facilitators; establishment of the three pillars of career guidance and how to implement the steps for developing a comprehensive individualized career plan.

PTE **470 Technical Competence III** (1-12 cr, max 12) (VoEd 470). See PTE 270. Prereq: enrollment in the final semester of the degree program in professional-technical education.

PTE **471 Practicum: Professional-Technical Education Teaching** (3-10 cr, max 10) (VoEd 471). See ACTE 471.

PTE **472 Professional-Technical Education Methods** (3 cr) (VoEd 472). Selection and application of appropriate teaching methods; emphasis on demonstration, lecture, problem solving methods, learning activity packages, and instructional media and technology.

PTE **480 Advanced Technical Competence** (1-6 cr, max 6) (VoEd 480). Experiences to enable the individual to gain depth in technical competency beyond the basic certification requirements, and to maintain skills in harmony with current industrial practice. Prereq: perm.

PTE **496 Directed Work Experience** (1-3 cr, max 9) (VoEd 496). See BuEd 496.

PTE **497** (s) **Practicum** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

PTE **499** (s) **Directed Study** (cr arr). Prereq: perm.

PTE **500 Master's Research and Thesis** (cr arr).

PTE **501** (s) **Seminar** (cr arr). Prereq: perm.

PTE **502** (s) **Directed Study** (cr arr). Prereq: perm.

PTE **503** (s) **Workshop** (cr arr). Prereq: perm.

PTE **504** (s) **Special Topics** (cr arr). Prereq: perm.

PTE **505 Professional Development** (cr arr). See PTE J405/J505.

PTE **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

PTE **507 The Future of Education and Work** (3 cr) (VoEd 507). See ACTE 507.

PTE **515 Instructional Strategies** (3 cr) (VoEd 515). Principles, concepts, aims and applications of program and teaching strategies.

PTE **518 Learning Styles** (3 cr) (VoEd 515). See PTE J418/J518.

PTE **524 Issues in Marketing Education** (3 cr) (VoEd 524). See BuEd 524.

PTE **526 Instructional Design and Curriculum** (3 cr) (VoEd 526). See ACTE J426/J526.

PTE **543 Administration and Supervision of Learning Programs** (3 cr) (VoEd 543). See ACTE 543.

PTE **551 Principles and Philosophy of Professional-Technical Education** (3 cr) (VoEd 551). See PTE J351/J551.

PTE **555 Program Evaluation for the Training and Learning Enterprise** (3 cr) (VoEd 555). See ACTE 555.

PTE **581 Theory, Practices, and Challenges of Leadership** (3 cr) (VoEd 581). See ACTE 581.

PTE **597** (s) **Practicum** (cr arr). Application of theories and techniques; supervised field experiences in selected settings. Graded P/F. Prereq: perm.

PTE **598** (s) **Internship** (cr arr). Supervised experience in teacher education, administration, supervision, or ancillary services in professional-technical education. Graded P/F. Prereq: perm.

PTE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

PTE **600 Doctoral Research and Dissertation** (cr arr).

Psychology

Richard Reardon, Chair, Dept. of Psychology (206 Student Health Ctr. 83844-3043; phone 208/885-6324).

PREREQUISITE: Unless otherwise stated, Psyc 101 is a prerequisite to all other courses in this field. Unless a prerequisite is specifically stated, the prerequisite to all graduate courses is permission of department and instructor.

Psyc **101 Introduction to Psychology** (3 cr) (C). May be used as core credit in J-3-e. Intro to psychology topics, including sensation and perception, learning and thinking, motivation, personality and adjustment, social processes, psychological testing; emphasis on fundamental principles.

Psyc **200** (s) **Seminar** (cr arr). Prereq: perm.

Psyc **203** (s) **Workshop** (cr arr). Prereq: perm.

Psyc **204** (s) **Special Topics** (cr arr). Prereq: perm.

Psyc **218 Introduction to Research in the Behavioral Sciences** (4 cr). Primarily for majors in psychology. Logic and method of empirical research in the behavioral sciences; design, execution, and reporting of psychological experimentation and research. Three lec and one 2-hr lab a wk. Prereq: Stat 251.

Psyc **299** (s) **Directed Study** (cr arr). Prereq: perm.

Psyc **305 Developmental Psychology** (3 cr) (C). Conception to preadolescence; genetics, anatomy, physiology, biological changes during development, learning, socialization, cognition, and personality.

Psyc **309 Personality and Social Development in Children** (3 cr) (C). Personality and social development from birth to adolescence, including areas of attachment, aggression, impulse control, sex differences, development of a sense of self, conscience development, and effects of parental childrearing styles upon child. Prereq: Psyc 218, 305.

Psyc **310 Psychology of Personality** (3 cr) (C). Theories of personality, basic concepts, techniques of measurement, and experimental methods; the normal personality.

Psyc **311 Abnormal Psychology** (3 cr) (C). Nature, causes, treatment, and prevention of patterns of emotional disturbances and personality disorders, including neuroses and psychoses.

Psyc **316 Industrial Psychology** (3 cr). Contributions of experimental, social, counseling, and clinical psychology to the everyday problems of organization; emphasis on industrial organizations.

Psyc **320 Introduction to Social Psychology** (3 cr). Theories, concepts, and research on the social bases of behavior and social interaction; topics of personal and social relevance, aggression, prejudice, altruism and helping behavior, interpersonal attraction, behavior in groups, conformity, attitudes, authoritarianism, and obedience to authority. Prereq: Psyc 218.

Psyc **J325/J525 Cognitive Psychology** (3 cr). Survey and analysis of major topics in field; emphasis on contemporary research and theory; related topics in perception, memory, and information processing and transformation. Additional projects/assignments reqd for grad cr. Prereq: Psyc 218 or perm.

Psyc **J330/J530 Human Sexuality** (3 cr). Introduction to the fundamentals of human sexuality; emphasis on current trends and research. Additional projects/assignments reqd for grad cr. No prerequisite.

Psyc **372 Physiological Psychology** (3 cr) (C). Physiological bases of animal and normal human behavior. Prereq: Biol 201 or 202, or perm.

Psyc **390 Psychology of Learning** (3 cr) (C). Experimental literature of the nature and conditions of classical and operant conditioning, verbal learning, and cognition. Prereq: Psyc 218.

Psyc **400** (s) **Seminar** (cr arr). Prereq: perm.

Psyc **403** (s) **Workshop** (cr arr). Prereq: perm.

Psyc **404** (s) **Special Topics** (cr arr). Prereq: perm.

Psyc **409 Cognitive Development** (3 cr). Intellectual development of child from birth to maturity, mechanisms of intellectual growth, relationship between language and cognitive development. Prereq: Psyc 218, 305.

Psyc **411 Clinical Psychology** (3 cr). Survey of the field of clinical psychology including history, models, interviewing skills, diagnostic testing, psychotherapy methods, and professional issues.

Psyc **WS412 Psychological Testing and Measurement** (3 cr). WSU Psych 412.

Psyc **415 History and Systems of Psychology** (3 cr) (C). History of psychology as a field of scientific inquiry; overview of development of schools of thought, prominent figures, and key theories. Prereq: Two upper-division psychology courses.

Psyc **419 Adult Development and Aging** (3 cr). Analysis of change from early adulthood through death in the areas of social, cognitive, and physical development; examination of theories, concepts, and research in the area of lifespan development; study of the problems of aging, plasticity of functioning, and ingredients of successful aging.

Psyc **430 Tests and Measurements** (3 cr). Review of the major principles of test development including test construction and methods for determining test validity and reliaiblity, some of the currently used scales, and study of scaling methods such as Thurstone scales, Likert scales, and semantic differentials. Prereq: Psyc 218.

Psyc **435 Personnel Psychology** (3 cr). Review of theory and methods related to personnel issues; includes topics such as individual differences, selection, psychometrics, compensation, training programs, and performance appraisal. Prereq: Psyc 430 or perm.

Psyc **444 Sensation and Perception** (3 cr). Fundamental processes and variables in sensory, perceptual, and cognitive experiences of humans. Prereq: Psyc 218.

Psyc **446 Engineering Psychology** (3 cr). Application of principles of experimental psychology to analysis of interaction of the human operator with machine systems and work environments; emphasis on psychological aspects of human performance. Prereq: Psyc 218 or Stat 301 or perm.

Psyc **448 Psycholinguistics** (3 cr). See Engl 448.

Psyc **J450/J550 Training and Performance Support** (3 cr). Review of applicable theory and various methods for developing training programs and performance support systems; emphasis on developing skills for front-end analysis, training program and performance support design, and program evaluation. Additional project/assignments reqd for grad cr. Prereq: Psyc 325 or perm.

Psyc **J452/J552 Ergonomics and Biomechanics** (3 cr). Principles of anthropometry, biomechanics, and work physiology applied to workplace. Additional projects/assignments reqd for grad cr.

Psyc **456 Psychology of Emotion** (3 cr) (C). Theories of emotion; biological and social variables influencing the activation of emotion.

Psyc **J461/J561 Human-Computer Interaction** (3 cr). Overview of human-computer interaction (HCI) topics, including user models, dialog, display design, usability, software development, groupware, and multimedia. Additional projects/assignments reqd for grad cr. Prereq: Psyc 446 or perm.

Psyc **496 Applied Behavior Analysis** (3 cr) (C). Analysis and assessment of behavior in real-life settings, e.g., home, business, industry, and institutions such as prisons and psychiatric hospitals; structured programs of intervention and assessment of behavior change; special emphasis on self-management of behavior. Prereq: Psyc 218 and 390.

Psyc **497** (s) **Practicum in Instruction** (1-3 cr, max 6). Tutoring and/or instructional services performed by advanced students under faculty supervision. Prereq: perm.

Psyc **498** (s) **Internship** (1-6 cr, max 6). Directed internship in an approved setting that features psychological applications. Prereq: perm.

Psyc **499** (s) **Directed Study** (cr arr). Prereq: perm.

Psyc **500 Master's Research and Thesis** (cr arr).

Psyc **501** (s) **Seminar** (cr arr). Prereq: perm.

Psyc **502** (s) **Directed Study** (cr arr). Prereq: perm.

Psyc **503** (s) **Workshop** (cr arr). Prereq: perm.

Psyc **504** (s) **Special Topics** (cr arr). Prereq: perm.

Psyc **517 Industrial and Organizational Psychology** (3 cr). Applications of theories, methods, and findings of psychology to problems of organizations and industry. Prereq: perm.

Psyc **WS520 Attitudes and Social Cognition** (3 cr). WSU Psych 550.

Psyc **525 Cognitive Psychology** (3 cr). See Psyc J325/J525.

Psyc **528 Psychopathology** (3 cr). Review of symptoms, causes, and treatments in adult psychopathology; training in use of DSM-IV for differential diagnosis; may include practicum experience. Prereq: perm.

Psyc **530 Human Sexuality** (3 cr). See Psyc J330/J530.

Psyc **541 Social Psychology in the Workplace** (3 cr). Study of social theory and methods as applied in industry and organizations; includes topics such as attitudes and values, behavior change, conformity, group dynamics and communication, leadership, and cultural norms. Prereq: perm.

Psyc **WS544 Medical Psychology: Psychological and Pharmacological Interventions** (3 cr). WSU Psych 544.

Psyc **550 Training and Performance Support** (3 cr). See Psyc J450/J550.

Psyc **552 Ergonomics and Biomechanics** (3 cr). See Psyc J452/J552.

Psyc **555 Safety Analysis** (3 cr). Effect of environmental, job, and personal stressors on work performance; systems analysis; safety analysis and accident prevention.

Psyc **561 Human-Computer Interaction** (3 cr). See Psyc J461/J561.

Psyc **562 Advanced Human Factors** (3 cr). Review of topics and theories germane to human factors such as performance measurement systems, design specifications, research issues, controls and displays, human reliability, and illumination. Prereq: ME 409, Psyc 446, and Psyc 586 or Stat 401; or perm.

Psyc **WS575 Psychopathology** (3 cr). WSU Psych 533.

Psyc **585 Research Methods** (3 cr). Philosophy of research, types of design, data analysis, research report. Prereq: Psyc 218 or equivalent, or perm.

Psyc **586 Advanced Research Methods** (3 cr). Types of research designs and data analyses; use of mainframe computer packages for data analysis. Prereq: perm.

Psyc **598** (s) **Internship** (cr arr). Prereq: perm.

Psyc **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Range Resources

Kendall L. Johnson, Head, Dept. of Rangeland Ecology and Management (205B FWR Bldg. 83844-1135; phone 208/885-6536).

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

Rnge **200** (s) **Seminar** (cr arr). Prereq: perm.

Rnge **203** (s) **Workshop** (cr arr). Prereq: perm.

Rnge **204** (s) **Special Topics** (cr arr). Prereq: perm.

Rnge **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Rnge **221 Natural Resources Ecology** (3 cr). Same as WLF 221. Principles of plant and animal ecology with emphasis on concepts applied in natural resources; includes interactions between organisms and their physical environment, evolutionary processes, populations, communities, energy flow and ecosystems, and conservation biology. Recommended preparation: Biol 202 and 203. Prereq: Biol 100 or 201, or perm. [http://www.uidaho.edu/ecology]

Rnge **251 Principles of Range Resources Management** (2 cr). Development of range use and range resource management, rangeland vegetation types, current management issues, relationship of grazing use with other land uses and values.

Rnge **299** (s) **Directed Study** (cr arr). Prereq: perm.

Rnge **302 Wildland Field Ecology** (2 cr). Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235 and For/Rnge/WLF 221.

Rnge **352 Natural History of Western Rangelands** (3 cr). Survey of rangeland plant communities of western North America, focusing on their natural history, including the effects of use by human beings, based on their physical, climatic, and biological characteristics. Prereq: Rnge/For/WLF 221 or equiv.

Rnge **353 Rangeland Plant Identification and Ecology** (3 cr). Classification, description, and identification of the most important rangeland and riparian plants in North America; particular reference to important ecological roles of these plants. Prereq: For/Rnge/WLF 221 or perm.

Rnge **354 Wildland Vegetation Management and Restoration** (3 cr). Objectives, methods, benefits, and environmental impact of wildland vegetation management practices; ecological implications in vegetation management prescriptions for rangeland, forestland, and wetland restoration. Two 1-day field trips. Prereq: Rnge 251 and Rnge/For/WLF 221 or perm.

Rnge **ID&WS357 Rangeland and Riparian Habitat Assessment** (3 cr). WSU NATRS 357. Methods for inventory and monitoring of upland and riparian rangeland communities; basic sampling techniques used for measuring vegetation attributes and assessing production and utilization of vegetation for management purposes; evaluation of plant communities will be interpreted with respect to ecological health, watershed protection, and value as livestock and wildlife habitat. Two lec and one field trip/lab a wk. Prereq: basic statistics course and perm.

Rnge **398** (s) **Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

Rnge **400** (s) **Seminar** (cr arr). Prereq: perm.

Rnge **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Rnge **403** (s) **Workshop** (cr arr). Prereq: perm.

Rnge **404** (s) **Special Topics** (cr arr). Prereq: perm.

Rnge **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Rnge **430 Riparian Ecology and Management** (2 cr). Structure, function, and management of riparian ecosystems; interrelationships of terrestrial and aquatic components of riparian areas. Prereq: WLF/For/Rnge 221.

Rnge **440 Wildland Restoration Ecology** (3 cr). Ecological principles and management practices involved in restoring and rehabilitating wildland ecosystems after disturbance or alteration to return damaged ecosystems to a productive and stable state. Prereq: a course in general ecology or perm. (Alt/yrs; spring only)

Rnge **454 Rangeland Weed Management** (3 cr). Ecological principles and management options for invasive plant control on rangelands; focus on landscape-level management approaches including detection, monitoring, and prevention of weed invasions, restoration of weed-infested rangeland and coordinated weed management planning. One 2-day field trip. Recommended prereq: PISc 338, Rnge 354. (Alt/yrs; fall only)

Rnge **456 Integrated Rangeland Management** (3 cr). Management strategies for integrating grazing with other natural resource values such as wildlife, water, timber, recreation, and aesthetics; emphasis on herbivore ecology including ecological impacts of grazing, ways to manage grazing, and nutritional relationships between plants and free-ranging ungulates on rangeland, pastureland, and forest ecosystems. One 1-week field trip. Prereq: Rnge 251.

Rnge **J458/ID-J558 Agroforestry** (3 cr). Same as For J458/J558. WSU NATRS 504. Interdisciplinary approach to sustainable land management that involves ecological, social, and economic integration of forest and woodland production with grazing and/or agriculture crops. Particularly suited to students from less-developed countries. Additional projects/assignments reqd for grad cr.

Rnge **ID459 Rangeland Ecology** (3 cr). WSU NATRS 459. Application of ecological principles in rangeland management; stressing response and behavior of range ecosystems to various kinds and intensity of disturbance and management practice. Two 1-day field trips. Prereq: a course in general ecology or perm.

Rnge **470 Interdisciplinary Natural Resource Planning** (3 cr). Land use planning and decision-making theories, legislation and techniques applied to natural resource case studies from public and private sector, including impact assessment, creation and valuation of alternatives, and public involvement. Two hrs of lec, 2 hrs of lab, and 1 hr of recitation a wk; may include one 1-day field trip. Prereq: senior standing; For/RRT 235; For/Rnge/WLF 221; For/Rnge/ForP/RRT/WLF/Fish 302; or perm.

Rnge **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

Rnge **493 Environmental Law** (2 cr). See WLF 493.

Rnge **497 Senior Research and Thesis** (cr arr) (Rnge 480). A research investigation, selected and designed jointly by the student and professor, during which the student has the opportunity to learn research techniques of experimental design, proposal writing, data collection and analysis, scientific writing, and publication; at completion, the student will produce a publishable journal manuscript and/or a conference presentation. Prereq: senior status and perm.

Rnge **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: sr standing, GPA 2.5, and perm.

Rnge **500 Master's Research and Thesis** (cr arr).

Rnge **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

Rnge **502** (s) **Directed Study** (cr arr). Prereq: perm.

Rnge **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

Rnge **504** (s) **Special Topics** (cr arr). Prereq: perm.

Rnge **506** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Rnge **WS525 Experimental Plant Ecology** (3 cr). WSU NATRS 525.

Rnge **527 Landscape Ecology of Forests and Rangelands** (2-3 cr). Ecological relationships of biotic communities in heterogeneous environments, spatial and temporal patterns, importance of landscapes in maintenance of ecosystem diversity and function. One 2-hr lecture/discussion a week based on extensive reading of current literature and case studies. In addition, those students taking 3 credits will meet an additional hour a week, focusing on quantitative landscape analysis, and they will participate in a 2-day field trip. Prereq: upper-division plant or animal ecology. (Spring only)

Rnge **530 Stream Ecology** (2 cr). Structure and function of running water ecosystems; principles of population, community, and ecosystem ecology in streams and rivers. (Alt/yrs)

Rnge **541 Issues of Renewable Natural Resource Industries** (2 cr). Overview of renewable natural resource base industries with focus on forest products, range livestock, and tourism; review of historical and economic base for industries and current social, biological, and economic issues of importance.

Rnge **ID551 Rangeland Vegetation Ecology** (3 cr). WSU NATRS 551. Ecological concepts of the nature, dynamics, and distribution of plant communities; secondary successional processes, soil-vegetation relations, and development of vegetation-classification schemes for better land management. Prereq: plant ecology and perm. (Alt/yrs)

Rnge **ID552 Restoration Ecology** (2 cr). WSU NATRS 554. Restoration of disturbed or damaged ecosystems; fundamental principles from stress physiology and community ecology and review of case studies in restoration ecology used to examine how damaged ecosystems can be restored. Prereq: Rnge 459 or equivalent course in plant ecology, or perm. [http://www.uidaho.edu/ecology]

Rnge **553 Foraging Behavior of Rangeland Herbivores** (3 cr). Behavioral processes of rangeland herbivore foraging, including domestic livestock and wild ungulates; techniques for researching rangeland herbivore foraging behavior; application of theoretical concepts to grazing management.

Rnge **555 Current Issues in Rangeland Resource Management** (2 cr). Investigation and disc of current issues in range resources and closely related fields. Prereq: perm. (Alt/yrs)

Rnge **ID558 Agroforestry** (3 cr). See Rnge J458/J558.

Rnge **ID560 Plant Autecology** (3 cr). WSU NATRS 524. Adaptations of individual species in rangeland and forest communities; emphasizing morphological and physiological mechanisms that influence plant establishment, below- and above-ground productivity, plant competition, and grazing sensitivity. Two days of field trips. Prereq: Rnge 221, Bot 311 or perm. [http://www.uidaho.edu/ecology]

Rnge **570 World Biomes** (2 cr). A comprehensive survey and analysis of world biomes, which are continental-sized ecosystems; team projects with computer-based information technology (geographical information systems, digital media, and interactive multimedia programs) to analyze the structure and function of biomes; comprehensive analysis of interrelationships among the environment, flora and fauna, and major human influences on biomes. Prereq: a course in general ecology (e.g., Rnge 221 or Biol 331), general botany (e.g., Bot 311), and an advanced course in community ecology (e.g., Rnge 459 or Bot 432), or perm.

Rnge **595** (s) **Problems in World Resources** (1-3 cr, max 3). Prereq: perm.

Rnge **597** (s) **Practicum** (cr arr). Prereq: perm.

Rnge **598** (s) **Internship** (cr arr). Prereq: perm.

Rnge **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Rnge **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Recreation

Calvin W. Lathen, Director, Div. of Health, Physical Education, Recreation and Dance, and Coordinator of Recreation (101 Phys. Ed. Bldg 83844-2401; phone 208/885-7921).

Rec **102 Introduction to Recreation Professions** (1 cr). Intro to recreation and its related management problems, resources, and professional opportunities. Graded P/F.

Rec **ID110 Recreation for People with Disabilities** (3 cr). WSU RLS 110. Overview of recreation for special populations with emphasis on history, etiology, characteristics, services, resources, professional competencies and opportunities, and recreation programs. Two 1-day field trips may be reqd.

Rec **125 Outdoor Leisure Pursuits** (2 cr). Focus on wide range of outdoor leisure pursuits available in America, the public and private entities that administer them, and changes that increasing demand will necessitate in the future. Field trips reqd. (Alt/yrs)

Rec **WS181 Introduction to Hospitality Services Industries** (3 cr). WSU H A 181.

Rec **200** (s) **Seminar** (cr arr). Prereq: perm.

Rec **203** (s) **Workshop** (cr arr). Prereq: perm.

Rec **204** (s) **Special Topics** (cr arr). Prereq: perm.

Rec **215 River Reading and Whitewater Safety** (1 cr). River reading knowledge, whitewater safety, and rescue instruction; wild and scenic river legislation and requirements for back country travel along river corridors.

Rec **220 Rock Climbing** (1 cr). Intro to fundamentals of basic rock climbing including equipment, climbing techniques, knots, belaying, and rappelling; emphasis on skill development, risk management, and leadership. Three off-campus field sessions. Prereq: Two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **221 Mountaineering** (2 cr). Intro to fundamentals of mountaineering including equipment; fundamentals; rock, snow, and ice techniques; climbing equipment; navigation; expedition planning and safety; emphasis on skill development and safety. One 3-day field trip. Prereq: Rec 220 and two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm.

Rec **222 Cross Country Skiing** (1 cr). Intro to skills of cross country skiing including equipment, waxing, climbing techniques, turns, downhill, and diagonal glides. One 1-day field trip. Prereq: Two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **223 Winter Camping** (2 cr). Intro to fundamental skills reqd to successfully travel in winter environment, including equipment, trip planning, avalanche awareness, snow shelters, travel techniques, and safety including psychological and physiological aspects of cold/winter weather. One 1-day and one 2-day field trips. Prereq: Rec 222 and two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **224 Whitewater Rafting** (1 cr). Intro to skills of whitewater rafting including equipment, trip planning, permits, techniques, and river impact. One or two field trips. Prereq: Rec 215; two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **225 Kayaking** (1 cr). Intro to skills of whitewater kayaking including equipment, eskimo rolls, eddy turns, ferrying, and rapid maneuvering. One 2-day field trip. Prereq: Rec 215; two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm. (Alt/yrs)

Rec **226 Whitewater Canoeing** (1 cr). Introduction to fundamentals of tandem canoe paddling on whitewater rivers; equipment, trip planning, and paddling technique will be examined and practiced. One lec and 2 hrs of lab a wk; one 4- to 7-day field trip. Prereq: Rec 215.

Rec **227 Mountain Biking** (2 cr). Introduction to fundamentals of mountain biking including equipment, trip planning, skill development, off-road riding, bike repair, and safety. One lec and 2 hrs of lab a wk; one 4- to 7-day field trip.

Rec **ID230 Principles of Recreational Therapy** (3 cr). WSU RLS 230. Philosophy, design, and development of recreation programs for persons with disabling conditions, as well as theory and rationale of recreational therapy. Field experience reqd. Prereq: Zool 120 and 121 or perm.

Rec **WS235 Principles of Tourism** (3 cr). WSU H A 235.

Rec **243 Recreation Activities** (2 cr). Same as PEP 243. Experience in planning, organizing, leading, and evaluating a broad range of games, social recreation, music, drama, arts and crafts, and special events activities.

Rec **254 Camp Leadership** (2-3 cr, max 3). Objectives, program, and philosophy of private, organizational, and school camp programs. One 3-4 day field trip. (Alt/yrs)

Rec **255 Backpacking and Camping Skills** (2 cr). Lecture, discussion, demonstration, and practical applications in backpacking and camping skills. Field trips reqd. Prereq: Two courses from Rec 125, 320, 420, RRT 287, 387, 487, 490, or perm.

Rec **256 Camp Counseling Practicum** (2-3 cr, max 3). For camp counselors who are employed by or assigned to approved camps. Cr granted on the basis of one cr for each two wks of camping. Student contracts with instructor for written work. Prereq: perm.

Rec **260 Leisure and Society** (3 cr). Expanding role of leisure in U.S. life; emphasis on factors influencing leisure; analysis of leisure values as related to the individual and society.

Rec **275 Computer Applications in Leisure Services** (2 cr). Introduction to computer software applicable to the recreation and leisure profession; software used to produce presentation graphics, desktop publishing, spreadsheets, web page creation, and print material for the leisure profession; Internet access for electronic mail, and Web searches. One lec and one lab a wk.

Rec **280 Recreation Practicum** (1 cr, max 2). Practical experience in agency recreation and leisure services. Forty clock hrs reqd a cr. Graded P/F. Prereq: perm of adviser.

Rec **299** (s) **Directed Study** (cr arr). Prereq: perm.

Rec **300 Swimming Pool Management** (2 cr). Professional pool and spa operator training that will yield certification through the National Swimming Pool and Spa Foundation. Pool and spa chemistry; plant maintenance and operation; chemical safety; energy considerations; health and safety codes; mechanical aspects of pools and spas. Two 1-day field trips.

Rec **320 Outdoor Recreation Leadership** (2 cr). Theory and practice of outdoor leadership techniques necessary for successful outdoor leaders. One 2-day field trip. Prereq: Rec 255 and one outdoor recreation skill course or perm. (Alt/yrs.)

Rec **321 Wilderness Medicine and Evacuation** (1 cr). Fundamentals of handling wilderness emergencies; instruction including prevention, recognition, evaluation, treatment, and evacuation of injured people in remote situations. One 2-day field trip. (Alt/yrs)

Rec **329 Leadership in Recreation** (3 cr). Intro to theories, methods, and styles of effective leadership; includes motivation, group dynamics, leadership skills, and abilities in the recreation and leisure setting. (Alt/yrs)

Rec **ID330 Recreational Therapy Programming for People with Disabilities** (3 cr). WSU RLS 330. Prevalent disabling conditions (including etiology, symptomatology, and characteristics) and their implications for programming intervention in clinical settings. Field trips reqd. (Alt/yrs)

Rec **340 Leisure and Tourism Enterprises** (3 cr). Intro to resort and commercial leisure enterprises including history, types of services, trends, careers, and relationship between business and leisure programs, services, and products. Field trips reqd. (Alt/yrs)

Rec **ID341 Assessment and Evaluation in Recreational Therapy** (2 cr). WSU RLS 344. Standardized assessment and evaluation tools currently used in recreational therapy services; integration of assessment practices into recreational therapy programs and how to choose standardized tools appropriate to both client and professional setting; practical assessment situations. (Alt/yrs)

Rec **ID342 Recreational Therapy in Psychiatric Settings** (3 cr). WSU RLS 342. Recreational therapy delivery in psychiatric settings, including long-term settings such as state hospitals, acute inpatient psychiatric settings, and community mental health centers; major psychiatric disorders, how to work as a part of an interdisciplinary team, and the viable role of recreation in the treatment process. Ten hrs of outside experience reqd. (Alt/yrs)

Rec **349 Municipal Park Administration and Maintenance** (2 cr). Principles, practices, and problems involved in public park management; emphasis on maintenance, finances, and administration. Two 1-day field trips may be reqd. (Alt/yrs)

Rec **ID365 Leisure and the Aging Process** (3 cr). WSU RLS 365. Recreation programming for the elderly based on aging process, cultural influences, and psychological and sociological aspects; visitation and field experience reqd. (Alt/yrs)

Rec **WS382 Hospitality Management and Organization** (3 cr). WSU H A 381.

Rec **400** (s) **Seminar** (cr arr). Prereq: perm.

Rec **403** (s) **Workshop** (cr arr). Prereq: perm.

Rec **404** (s) **Special Topics** (cr arr). Prereq: perm.

Rec **J405/J505 Professional Development** (cr arr). Cr earned may not be applied toward grad degree program. Professional development and enrichment of recreational professionals. Additional projects/assignments reqd for grad cr.

Rec **410 Trends and Issues in Leisure Services** (3 cr). Current trends and issues in recreation and parks field; group discussion; background and experience in solving recreation problems through selected topics of current importance in recreation/parks field. (Alt/yrs)

Rec **420 Experiential Education** (2 cr). Philosophy and administration of adventure activities, initiative games, ropes courses, and their application to individual and group development; program development and staff development. Field trips reqd. (Alt/yrs)

Rec **425 Leisure Education** (2 cr). Historical and philosophical basis of leisure education and leisure counseling; emphasis on identification of individual interests and attitudes in relationship to recreation and leisure needs; review of existing programs, description of methods, techniques, instruments utilized; methods for developing individual leisure profiles. (Alt/yrs)

Rec **ID-J431/J531 Medical Terminology** (2 cr). WSU RLS 431. Intro to basic concepts of medical terminology and symbols related to working with people with disabilities. Additional projects/assignments reqd for grad cr. (Alt/yrs)

Rec **ID-J435/ID-J535 Clinical Aspects of Recreational Therapy** (3 cr). WSU RLS 430. Orientation to the practice of recreational therapy as a clinical modality; conceptual framework for understanding importance of using activities in the helping process used by RT profession in clinical settings. Cr earned in Rec 530 by completion of additional projects/assignments. Field trip reqd. Coreq: Rec 280. (Alt/yrs)

Rec **445 Professional Seminar** (1 cr). Orientation to rec internship, professionalism, and employment techniques including development of a vita and interviewing skills. Graded P/F.

Rec **460 History and Philosophy of Recreation and Leisure** (2 cr). Development of recreation movement and its cultural, social, and economic background; philosophies of significant leaders in the field; students develop a personal philosophy of recreation. (Alt/yrs)

Rec **ID-J467/ID-J567 Recreational Therapy for People with Developmental Disabilities** (3 cr). Same as PEP J467/J567. WSU RLS 467. Programming models for people with developmental disabilities; RT intervention from developmental sequencing to community reintegration; assessment and treatment planning incorporated into lab experience. Cr earned in Rec 567 by completion of additional projects/assignments. Field trip reqd. (Alt/yrs)

Rec **WS482 Recreation Law and Risk Management** (3 cr). WSU RLS 482.

Rec **486 Recreation Program Planning and Marketing I** (2 cr). Planning and development of recreation programs and implementation of marketing techniques; theoretical emphasis with recreation special event programmed at end of semester.

Rec **487 Recreation Program Planning and Marketing II** (2 cr). Planning and development of recreation programs and implementation of marketing techniques; practical application emphasis. Prereq: Rec 486 or perm.

Rec **J493/J593 Management of Leisure Services** (3 cr). Planning and development; leadership, facilities, finances, services, and public relations. Cr earned in Rec 593 by completion of additional projects/assignments. (Alt/yrs)

Rec **495** (s) **Practicum in Tutoring** (1 cr, max arr). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Rec **498** (s) **Internship in Recreation** (cr arr). Supervised field work with a professional recreation agency. Prereq: Rec 280, 445, and sr standing.

Rec **499** (s) **Directed Study** (cr arr). Prereq: perm.

Rec **505 Professional Development** (cr arr). See Rec J405/J505.

Rec **WS522 Administrative Perspectives** (3 cr). WSU RLS 522.

Rec **WS529 Historical and Philosophical Analysis of Leisure** (3 cr). WSU RLS 529.

Rec **531 Medical Terminology** (2 cr). See Rec J431/J531.

Rec **WS532 Urban Outdoor Recreation** (3 cr). WSU RLS 530.

Rec **WS533 Social Psychological Perspectives of Leisure** (3 cr). WSU RLS 532.

Rec **WS534 Comprehensive Planning and Operations in Leisure Services** (3 cr). WSU RLS 535.

Rec **ID535 Clinical Aspects of Therapeutic Recreation** (3 cr). See Rec J435/J535.

Rec **ID567 Therapeutic Recreation for People with Developmental Disabilities** (3 cr). See Rec J467/J567.

Rec **WS582 Recreation Law and Risk Management** (3 cr). WSU RLS 582.

Rec **593 Management of Leisure Services** (3 cr). See Rec J493/J593.

Rec **ID594 Sport and Recreation Budget and Finance** (3 cr). WSU RLS 594. Policies and practices involved in acquisition, control, and financial management in sport and recreation agencies.

Rec **595 Sport and Recreation Facility Management** (3 cr). Management techniques and philosophies applied to recreation and sport facilities; includes operation, marketing, legislation and legal issues, personnel and technical design and planning. Field trips.

Rec **596 Recreation and Sport Management Behavior** (3 cr). Management behavior and strategies related to recreation and sport agencies, including leadership, supervision, and a variety of administrative issues.

Rec **ID597 Computer Applications in Recreation and Leisure Studies** (3 cr). WSU RLS 597. Identifying different computer applications in recreation and leisure fields; acquiring specific computer skills in use of specialized software packages for registration, scheduling, budgeting, and league operations; production of schedules and registration forms.

Rec **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate leisure agency. Graded P/F. Prereq: perm.

Rec **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Religious Studies

Nicholas F. Gier, Coordinator (403 Morrill Hall 83844-3016; phone 208/885-6284).

RelS **101 Introduction to Religious Studies** (3 cr). Intro to academic study of religion by analyzing history and development of Judaism, Christianity, and Islam.

RelS **133 Religion and Family** (2 cr). Overview of influence of religion on dating, courtship, marriage, and family life.

RelS **201 Introduction to Islam** (3 cr). Introduction to the religion of Islam; histories of the three main forms through which it has been transmitted to the modern era: Sunni, Shi'a, and Sufi; beginnings, development, and distinctiveness of these forms from the perspective of Muslim and non-Muslim scholarship, past and present; examination of Islam's founder, Muhammad, the Quran, dominant practices and beliefs, and the faith's historical relation to others.

RelS **204** (s) **Special Topics** (cr arr).

RelS **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

RelS **302 Biblical Judaism: Texts and Thought** (3 cr). See Phil 302.

RelS **303 Early Christianity: Texts and Thought** (3 cr). See Phil 303.

RelS **305 Philosophy of Religion** (3 cr). See Phil 305.

RelS **306 Hindu Thought** (3 cr). See Phil 306.

RelS **307 Buddhism** (3 cr). See Phil 307.

RelS **308 Confucianism and Taoism** (3 cr). See Phil 308.

RelS **321 Twentieth Century Theology** (3 cr). Recent developments in theology, with emphasis on American experience; includes evangelical, process, narrative, liberation, and feminist theologies.

RelS **322 Religious Movements in America** (3 cr). History and analysis of religion in America from native traditions through emerging religions on the contemporary scene.

RelS **327 Belief Systems** (3 cr). See Anth 327.

RelS **375 The Bible as Literature** (3 cr). See Engl 375.

RelS **404** (s) **Special Topics** (cr arr).

RelS **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

RelS **414 Development of Social Theory** (3 cr). See Soc 414.

RelS **442 The Medieval Church: Europe in the Early and High Middle Ages** (3 cr). See Hist 442.

RelS **447 The Age of the Renaissance and the Reformation** (3 cr). See Hist 447.

Resource Recreation and Tourism

Steven J. Hollenhorst, Head, Dept. of Resource Recreation and Tourism (19 FWR Bldg. 83844-1139; phone 208/885-7911; e-mail rrt@uidaho.edu; http://www.uidaho.edu/cfwr/rrt).

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

RRT **WS181 Introduction to Hospitality Services Industries** (3 cr). WSU H A 181.

RRT **200** (s) **Seminar** (cr arr). Prereq: perm.

RRT **203** (s) **Workshop** (cr arr). Prereq: perm.

RRT **204** (s) **Special Topics** (cr arr). Prereq: perm.

RRT **235 Society and Natural Resources** (3 cr). See For 235.

RRT **WS236 Principles of Tourism** (3 cr). WSU H A 235.

RRT **287 Professional Foundations of Resource Recreation and Tourism** (3 cr). Overview of development and management of wildland recreation and tourism resources and their integration into a political, economic, behavioral, and land use management framework; philosophical, theoretical, historical, and managerial foundations of leisure as they relate to societal trends in leisure from the perspective of the individual and society; contemporary issues, including special populations, ethnicity, and diversity.

RRT **299** (s) **Directed Study** (cr arr). Prereq: perm.

RRT **302 Wildland Field Ecology** (2 cr). Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions reqd; special fee assessed. Prereq: For/RRT 235 and For/Rnge/WLF 221.

RRT **303 Resource Recreation and Tourism Field Studies I** (1 cr). Preparation and overview of field site evaluation of resource recreation and tourism planning, development, marketing, and management cases.

RRT **304 Resource Recreation and Tourism Field Studies II** (2 cr). Field site evaluation of resource recreation and tourism planning, development, marketing, and management cases. Two-week field trip during summer session; special fee assessed. Prereq: RRT 303 or perm.

RRT **305 Field Research in Wilderness Ecology** (3 cr). See WLF 305.

RRT **306 Winter Field Ecology** (2 cr). Hands-on field study in a winter setting of ecological processes in terrestrial, aquatic, and human ecosystems from the individual to landscape and regional scales; application of ecological principles in a region of dynamic interaction of human and wildland management regimes. Seven days of classes and field laboratories and three days of individual project work. Prereq: one college-level biology course; chemistry and physics recommended.

RRT **310 Leisure Services Research and Evaluation** (4 cr). Quantitative, qualitative, and mixed approaches to studying leisure; how to choose and apply selective research methods; design, collection, and statistical analysis of primary and secondary data; program evaluation; reporting results; interpreting research literature; lab exercises in research design, data collection, and analysis; and the communication of research issues and findings to lay and professional audiences. Three lec and 2 hrs of lab a wk. Prereq: basic computer skills and Stat 251 or 301, or perm.

RRT **WS381 Hospitality Management and Organization** (3 cr). WSU H A 381.

RRT **383 Amenity Resource Economics for Environmental Policymaking** (3 cr). Theory of amenity and recreation resources as public goods; economic analysis of recreation, tourism, and amenity resources; application of economic principles and valuation methods to resource management and policy analysis. Prereq: Econ 202 or 201 or perm. (Alt/yrs)

RRT **ID385 Resource Recreation and Tourism Management** (3 cr). WSU NATRS 385. Comprehensive intro to theory, processes, and techniques for managing natural resources recreation and tourism systems; tourist, resource/attraction, and program management strategies demonstrating budgeting, contracting, and human resource management stressed. Prereq: RRT 287, 310 or perm. (Alt/yrs)

RRT **386 Resource Recreation and Tourism Planning** (3 cr). Integration of regional area aspects of land use planning relevant to provision of natural resource recreation and tourism opportunities; applied case studies in private and public sector used to demonstrate styles of planning, planning frameworks, and analysis techniques. Prereq: RRT 287, 310, 311 or perm.

RRT **ID387 Environmental and Cultural Interpretation** (3 cr). WSU NATRS 373. Introduction to environmental and cultural interpretation; communication psychology and media applied to noncaptive audiences in recreation and tourism. Prereq: RRT 287 or perm.

RRT **394 Natural Resources Communication** (3 cr) (RRT 494). Overview of applied communication methods necessary for the successful management of forests, wildlife, and other natural resources as well as parks and recreation areas; introduction to public involvement, marketing, public relations, environmental interpretation, and environmental education.

RRT **396 Wilderness Research Internship** (3 cr). See WLF 396.

RRT **398** (s) **Internship** (cr arr). Prereq: perm.

RRT **400** (s) **Seminar** (cr arr). Prereq: perm.

RRT **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

RRT **403** (s) **Workshop** (cr arr). Prereq: perm.

RRT **404** (s) **Special Topics** (cr arr). Prereq: perm.

RRT **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

RRT **470 Interdisciplinary Natural Resource Planning** (3 cr). Land-use planning and decision-making theories, legislation and techniques applied to natural resource case studies from public and private sector, including impact assessment, creation and valuation of alternatives, and public involvement. Two hrs of lec, 2 hrs of lab, and 1 hr of recitation a wk; may include one 1-day field trip. Prereq: senior standing, For/RRT 235, For/Rnge/WLF 221, For/Rnge/ForP/RRT/WLF/Fish 302; or perm.

RRT **ID484 Management of Recreation Sites and Leisure Settings** (2 cr). WSU NATRS 475. Introduction to theory, processes, and techniques for managing natural resource-based recreation and tourism sites; emphasis on site impacts and their management, visitor/customer management, liability and risk management, and the proper care of landscape trees and other amenity resources.

RRT **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

RRT **ID486 Public Involvement in Natural Resource Management** (3 cr). WSU NATRS 477. Same as Mrtn 486. Theoretical and applied concepts of public involvement in both public and private sectors of natural resource management; historical and legal mandates, government agency responsibilities, applied methods and techniques, case studies, and practical experience. Three lec and three hrs of lab a wk; field trip may be reqd. (Alt/yrs)

RRT **ID487 Field Environmental Education** (3 cr). WSU NATRS 476. Concept and techniques of environmental education with emphasis on application at camps, parks, and similar recreation and tourism informal settings. (Alt/yrs)

RRT **ID488 Interpretive Methods Lab** (3 cr). WSU NATRS 473. Development and application of interpretive materials and techniques; concentration on equipment and methods commonly used by natural resource agencies for communicating management programs and interpreting natural environments to visitors. One 3-day field trip. Prereq: RRT 387 or perm.

RRT **489 Personalities and Philosophies in Conservation** (2 cr). Lives and thinking of people who have significantly influenced conservation practice or issues surrounding it.

RRT **490 Wilderness Management** (3 cr). Historical and legal aspects of the wilderness concept; conceptual and applied approaches, considering both ecological and sociological elements; recent research. (Alt/yrs)

RRT **491 Wilderness Leadership for Personal Growth** (3 cr). Diverse approaches used in wilderness experience programs, theoretical bases for different approaches, and hands-on experience with soft skills approaches to wilderness experience. Three field trips.

RRT **492 International Land Preservation Systems** (3 cr). Growth and scope of international land preservation systems from early to recent times; worldwide application of concepts of national parks, nature reserves, wilderness reserves, nature sanctuaries, biosphere reserves, refuges, and other protective designations. (Alt/yrs)

RRT **493 International Issues in Nature Conservation** (3 cr). Examination of international conservation issues and their impact on human societies; analysis of social, cultural, economic, and political constraints to environmental problem solving.

RRT **496 Monitoring Human Impacts in Wilderness** (3 cr). Theoretical and applied concepts of identifying, measuring, and monitoring changes in wilderness ecosystems caused by human influences, including recreation use, management practices, and both on-site and off-site development. Field trips may be reqd. (Alt/yrs)

RRT **497 Senior Thesis** (2-4 cr, max 4). Independently plan and conduct a thesis project; write and defend the thesis under supervision of an adviser. Prereq: senior standing and minimum 3.20 GPA or perm.

RRT **498** (s) **Internship** (cr arr). Prereq: perm.

RRT **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: sr standing, GPA 2.5, and perm.

RRT **500 Master's Research and Thesis** (cr arr).

RRT **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

RRT **502** (s) **Directed Study** (cr arr). Prereq: perm.

RRT **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

RRT **504** (s) **Special Topics** (cr arr). Prereq: perm.

RRT **505** (s) **Professional Development** (cr arr). Cr earned in 505 will not be accepted toward graduate degree programs.

RRT **506 Fundamentals of Research** (4 cr). Research approaches, designs, and methods as applied in natural resources, leisure, and tourism professions. Prereq: basic statistics.

RRT **520 Human Dimensions of Wildlife Management** (2 cr). See WLF 520.

RRT **541 Issues of Renewable Natural Resource Industries** (2 cr). Overview of renewable natural resource base industries with focus on forest products, range livestock, and tourism; review of historical and economic base for industries and current social, biological, and economic issues of importance.

RRT **571 Human Dimensions of Ecosystem Management** (3 cr). A survey of research on key concepts, principles, and findings of social sciences pertaining to biophysical and social ecosystems, approaches for resource management development for diverse human values and behefits, and the role of humans in ecosystems; examines the state-of-knowledge based on recent studies in environmental psychology, community development and planning, rural sociology, and economic valuation and regional economic analyses; explores their significance for understanding human-ecosystem relationships and their possible ramifications for future resource policy and management.

RRT **583 Nature-Based Tourism** (3 cr). Current methods and approaches to natural resource tourism and its social, economic, and resource impacts, organizations involved, and management styles used by travel and tourism industry. (Alt/yrs)

RRT **586 Social Ecology of Natural Resources** (3 cr). See For 586.

RRT **587 Research Literature in Resource Recreation and Tourism** (3 cr). Readings in research literature pertinent to problems, practices, and theories of recreation and tourism; evolution of literature and critical evaluation of scientific methods used.

RRT **591 Theories of Recreation and Tourism Behavior** (3 cr). Same as Soc 591. Application of social science perspectives to the analysis of recreation and tourism behavior; pertinent social science frameworks are explored.

RRT **WS594 Environmental and Natural Resources Issues and Ethics** (3 cr). WSU NATRS 594.

RRT **595** (s) **Advanced Topics in International Conservation** (1-3 cr, max 3). Focused analysis of selected international nature conservation issues.

RRT **597** (s) **Practicum** (cr arr). Graded P/F. Prereq: perm.

RRT **598** (s) **Internship** (cr arr). Prereq: perm.

RRT **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

RRT **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Sociology

Donald E. Tyler, Chair, Dept. of Sociology/Anthropology/Justice Studies (101 Phinney Hall 83844-1110; phone 208/885-6751).

PREREQUISITE: The successful completion of Soc 101 and three additional credits of lower-division sociology course work are required for enrollment in upper-division sociology courses; exceptions by permission.

Soc **101 Introduction to Sociology** (3 cr) (C). May be used as core credit in J-3-e. Basic theories, concepts, and processes involved in scientific study of society; includes socialization process, social inequality, the family, religion, deviance, population, the environment, and social change.

Soc **200** (s) **Seminar** (cr arr). Prereq: perm.

Soc **203** (s) **Workshop** (cr arr). Prereq: perm.

Soc **204** (s) **Special Topics** (cr arr). Prereq: perm.

Soc **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Soc **209 Alternatives to Violence (ATV) Training** (2 cr). Participation in the training for ATV advocates that includes background information on domestic violence and sexual assault (35 hours) and entry-level techniques of working with victims; requires service in the agency for the duration of the year. Graded P/F. Limited enrollment. Prereq: perm.

Soc **220 Marriage and the Family** (3 cr). Introduction to traditional and alternative marriage styles; gender role socialization, mate selection, parenting, divorce, and remarriage.

Soc **230 Social Problems** (3 cr) (C). Contemporary social issues and personal deviations; crime and delinquency, poverty and wealth, drugs, sexual variations, racism, sexism, and the environment.

Soc **240 Introduction to Social Services** (3 cr). Survey of the field of social welfare and contemporary social services. Prereq: Soc 101 and 230.

Soc **299** (s) **Directed Study** (cr arr). Prereq: perm.

Soc **313 Collective Behavior** (3 cr) (C). Analysis of such episodes of behavior as riots, demonstrations, panics, hysteria, as well as interaction of sociological, political, and communication processes involved in public acceptance of fashion, fads, and ideology in a mass society.

Soc **314 Society and Self** (3 cr). Examination of the relationship between society and the self with a focus on the construction, maintenance, and performance of identities in America; exploration of sociological theories of the self, stigma, and social roles. Prereq: upper-division status and Soc 101 or equivalent.

Soc **315 Community Service Learning** (1-4 cr, max 4). Directed community service, requiring 67 to 140 hours, with concurrent seminar that integrates service experience with theories of human behavior. Prereq: Soc 101, 230, 240, and sociology major, or perm.

Soc **320 Sociology of Substance Abuse** (3 cr). Sociological-psychological analysis of etiology, epidemiology, prevention, and treatment of substance abuse in U.S.; major focus on family issues (including marital relationships, co-dependency) and lifestyle changes; dynamics of social change, subcultures, and symbolic functions attached to drug abuse; issues related to gender, occupational functioning, AIDS, and other topics.

Soc **322 Racial and Ethnic Relations** (3 cr). Same as Anth 322. Examination of the social construction of racial categories and meanings; theories of race relations; historical and contemporary experiences of racial/ethnic groups in the U.S.; contemporary issues and debates.

Soc **323 Social Stratification** (3 cr). Study of social inequality with a focus on the class structure of U.S. society; theories of stratification; consequences of social inequality.

Soc **324 Sociology of Gender** (3 cr). Historical and comparative analysis of the various roles, statuses, and life opportunities of men and women; emphasis on how gender roles develop in society and their effect on social structure, social institutions, and interpersonal interaction; consideration of both the women's and men's movements.

Soc **325 Sociology of the Family** (3 cr). Comparative and historical analysis of family systems, principles of social organization of the family; macroanalysis of kinship structures.

Soc **330 Juvenile Delinquency** (3 cr). Extent, causes, and control of juvenile delinquent behavior.

Soc **331 Criminology** (3 cr). Extent, criminal patterns, causes, correctional institutions, alternatives to incarceration. One 1-day field trip.

Soc **332 Corrections** (3 cr). Same as CJ 332. History, facilities, processes, and strategies for correction and punishment of offenders; analysis of concepts of prevention and control of crime.

Soc **360 Population Dynamics and Distribution** (3 cr). See Geog 360.

Soc **WS396 Social Work with the Aging** (3 cr). WSU S W 396.

Soc **400** (s) **Seminar** (cr arr). Prereq: perm.

Soc **403** (s) **Workshop** (cr arr). Prereq: perm.

Soc **404** (s) **Special Topics** (cr arr). Prereq: perm.

Soc **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

Soc **410 Methods of Social Research** (3 cr). Principal methods of data collection, analysis, and interpretation. Prereq: Stat 150 or 251; departmental major or minor.

Soc **J414/J514 Development of Social Theory** (3 cr). Same as Anth J414/J514; Soc 414 same as RelS 414. Development of social theory from classical roots through contemporary schools; biographical accounts and original works in sociological and anthropological theory Additional projects/assignments reqd for grad cr.

Soc **J430/J530 Deviance** (3 cr). Analysis and critique of theories of deviant behavior as applied to delinquency, prostitution, chemical dependencies, mental disorders, etc. Additional projects/assignments reqd for grad cr. Prereq: Soc 330 or 331 or perm.

Soc **ID&WS431 Personal and Social Issues in Aging** (3 cr). WSU Soc 356. Social, psychological, and physical impacts of aging on the individual and on society.

Soc **434 Family Violence** (3 cr). Explanations, patterns, and treatment of spouse abuse, child abuse, sexual exploitation of family members, and elder abuse.

Soc **470 Senior Seminar in Applied Research** (3 cr). Conducting sociological research focused on community needs and social policy evaluation. Prereq: upper-division status, Soc 410 and Stat 251 or 150, or perm.

Soc **495** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

Soc **498** (s) **Internship** (1-6 cr, max 6). Supervised professional field experience in human service organizations. Graded P/F. Prereq: departmental major and perm.

Soc **499** (s) **Directed Study** (cr arr). Intended to accommodate a wide variety of sociological topics. Prereq: perm.

Soc **501** (s) **Seminar** (cr arr). Subjects normally offered: sociological research, social problems, and social theory. Prereq: perm.

Soc **502** (s) **Directed Study** (cr arr). Subjects normally offered: sociological theory, human ecology, and race relations. Prereq: perm.

Soc **504** (s) **Special Topics** (cr arr). Prereq: perm.

Soc **507** (s) **Research Methodology** (3 cr). See AgEc 507.

Soc **514 Social Theory** (3 cr). See Soc J414/J514.

Soc **530 Deviance** (3 cr). See Soc J430/J530.

Soc **591 Theories of Recreation and Tourism Behavior** (3 cr). Same as RRT 591. Application of social science perspectives to the analysis of recreation and tourism behavior; pertinent social science frameworks are explored.

Soils

Michael J. Weiss, Head, Dept. of Plant, Soil, and Entomological Sciences (242 Iddings Wing, Ag. Sc. Bldg. 83844-2339; phone 208/882-6277; pseshead@uidaho.edu).

Soil **205 General Soils** (3 cr). Introduction to the physical, chemical, and biological nature of soils. Prereq: Chem 101 or satisfy prereq for Chem 111.

Soil **206 General Soils Lab** (1 cr). Lab study relevant to Soil 205. Experiments and demonstrations on basic and applied aspects of soil science. One 3-hr lab a wk. Coreq: Soil 205.

Soil **345 Sustainable Agriculture** (3 cr). Environmental issues in sustainable agriculture including human, land, air, water, and energy resources; recycling, pollution, biotechnology, and risk-benefit assessment. Available only in video format. Prereq: 2 semesters of college-level physical or biological science or perm.

Soil **398 Internship** (1-6 cr, max 6). Graded P/F. Prereq: perm of dept.

Soil **404** (s) **Special Topics** (cr arr). Prereq: perm.

Soil **415 Soil Physics** (3 cr). Physical properties of soils and their relationships to moisture, aeration, and temperature; cultural practices and erosion problems. Two lec and one 3-hr lab a wk. Prereq: Soil 205, 206, and Phys 111. (Alt/yrs)

Soil **J419/J519 Solute Transport in Porous Media** (2 cr). Transport processes and interactions of inorganic and organic solutes in soil; convective and diffusive processes, hydrodynamic dispersion. Term project required for grad cr. Prereq: Soil 205 or perm. (Alt/yrs)

Soil **422 Chemistry of Soil Environment** (3 cr). Chemical processes in soil environment. Prereq: Soil 205, 206, and Chem 112 or 113. (Alt/yrs)

Soil **J423/J523 Soil-Plant Analysis** (2 cr). Quantitative inorganic chemical analysis of soil-water-plant system. Special project reqd for grad cr. One lec and one 3-hr lab a wk. Prereq: Soil 205, 206, and Chem 113 or perm. (Alt/yrs)

Soil **J425/J525 Microbial Ecology** (3 cr). See MMBB J425/J525.

Soil **437 Soil Biology** (3 cr). Introduction to soil organisms including bacteria, fungi, and macroinvertebrates and the influence of their activities on soil processes. Two lec and one 3-hr lab a wk. Prereq: Soil 205 and MMBB 250 or perm. (Alt/yrs)

Soil **438 Pesticides in the Environment** (3 cr). Same as Ent, Intr, and PlSc 438. Principles of pesticide fate in soil, water, and air; pesticide metabolism in plants, pesticide toxicology, and pesticide mode-mechanism of action; pest resistance to pesticides; biotechnology in pest control; regulations and liability; equipment application technology; pesticide transport, storage, and disposal; and social and ethical considerations. Prereq: Chem 275. (Alt/yrs)

Soil **446** (s) **Soil Fertility** (1-3 cr, max 3). Principles of soil fertility management; availability of plant nutrients and their relationship to plant growth and fertilization practices. Prereq: Soil 205, 206.

Soil **J447/ID-J547** (s) **Soil Fertility Management** (1-3 cr, max 3). WSU SoilS 547. Philosophy of fertilizer recommendations based on soil and plant tissue testing; principles of fertilizer manufacture, placement, and use for improving plant growth. Project reqd for grad cr. Prereq: Soil 446.

Soil **454 Soil Development and Classification** (3 cr). Relationship of soil development to soil properties; soil profile descriptions and classification. Two lec and one 2-hr lab a wk; two 1-day or one 2-day field trips. Prereq: Soil 205, 206.

Soil **455 Forest Soils: Morphology, Function, and Spatial Dynamics** (3 cr). Same as For 455. Soils as fundamental components of forested ecosystems; relation of soil properties to forest productivity and management; soil processes within ecosystems; soil-landscape interactions and inventory. Two lec and one 3-hr lab a wk; one 2-day field trip may be required. Prereq: Soil 205 or perm.

Soil **ID&WS460 Environment, Agriculture and Food** (3 cr). WSU SoilS 460. Environmental issues in agriculture and food production; pesticides, fertilizers, organic wastes, biotechnology, quality of life, risk-benefit assessment. Prereq: 1 year of biological or physical science or perm.

Soil **499** (s) **Directed Study** (cr arr). Prereq: perm.

Soil **500 Master's Research and Thesis** (cr arr).

Soil **501** (s) **Seminar** (cr arr). Prereq: perm.

Soil **502** (s) **Directed Study** (cr arr). Prereq: perm.

Soil **504** (s) **Special Topics** (cr arr). Prereq: perm.

Soil **WS513 Models for Vadose Zone Transport** (2 cr). WSU SoilS 513. (Alt/yrs)

Soil **519 Solute Transport in Porous Media** (2 cr). See Soil J419/J519.

Soil **523 Soil-Plant Analysis** (2 cr). See Soil J423/J523.

Soil **525 Microbial Ecology** (4 cr). See MMBB J425/J525.

Soil **ID526 Soil Mineralogy** (2 cr). WSU SoilS 526. Distribution and significance of common soil minerals; weathering and general reactivity as related to mineral structures; techniques of mineral identification including x-ray diffraction, chemical dissolution procedures, optical and electron microscopy. One lec and one 3-hr lab a wk. Prereq: Soil 422, 454 or perm. (Alt/yrs)

Soil **528 Advanced Chemistry of Soil Environment** (3 cr). Practical treatment of physical and chemical processes affecting ion retention and bioavailability in soils and sediments including speciation, adsorption, precipitation, dissolution and redox reactions. Prereq: Soil 422 or perm. (Alt/yrs)

Soil **ID537 Soil Biochemistry** (3 cr). WSU SoilS 537. Same as MMBB 537. Origin, chemical structure, and significance of soil biochemical compounds. Prereq: Soil 422, MMBB 380, MMBB 250 or perm. (Alt/yrs)

Soil **WS541 Soil-Plant-Microbial Interaction** (3 cr). WSU SoilS 541. (Alt/yrs)

Soil **ID547** (s) **Soil Fertility Management** (1-3 cr, max 3). See Soil J447/J547.

Soil **549 Tropical Soils** (3 cr). Same as For 549. Management of tropical soils in relation with nitrogen, acidity, liming, phosphorus, and other nutrients; effects of cropping/forestry systems on soil productivity; survey of types and potential uses of soils in the tropics. Prereq: Soil 205 or perm. (Alt/yrs)

Soil **WS551 Advanced Pedology** (3 cr). WSU SoilS 551. (Alt/yrs)

Soil **ID557 Advanced Soil Genesis and Classification** (3 cr). WSU SoilS 557. Processes of soil genesis as influenced by environmental factors; rationale and development of soil taxonomy; field study of pedological problems. Two lec and one 2-hr lab a wk; 1/2-day and 1-day field trips reqd. Prereq: Soil 454 or perm. (Alt/yr)

Soil **597** (s) **Practicum** (cr arr). Prereq: perm.

Soil **598** (s) **Internship** (cr arr). Graded P/F. Prereq: perm.

Soil **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Soil **600 Doctoral Research and Dissertation** (cr arr).

Special Education

Teresa S. Jentsch, Coord. of Special Education (412 Educ. Bldg. 83844-3082; phone 208/885-7677).

EDSP **190** (s) **Special Education/Field Experience** (1-3 cr, max 3). Supervised observation and/or instruction with students with disabilities; group discussion sessions. Graded P/F.

EDSP **200** (s) **Seminar** (cr arr). Prereq: perm.

EDSP **204** (s) **Special Topics** (cr arr).

EDSP **275 Education of People with Disabilities** (3 cr) (C). History of provision of services, major movements, and philosophical changes; overview of legal issues and mandates; discussion of disabilities and their relation to learning and instruction. Prereq: sophomore standing; coreq: EDSP 190 or perm.

EDSP **280 Classroom Applications of Learning Theories** (3 cr) (C). Overview of learning theories, their histories, and applications in instructional settings; emphasis on behavioral principles and their relationship to instructional strategies; completion of a project in an applied setting. Prereq: EDSP 275 or perm.

EDSP **290** (s) **Special Education/Field Experience** (1-3 cr, max 3). See EDSP 190.

EDSP **299** (s) **Directed Study** (cr arr). Prereq: perm.

EDSP **377 Designing Instructional Programs** (2 cr). Overview of assumptions, current trends, legal and cultural issues; application of learning principles and strategies for curriculum development; collaborative development of individual Education, Instruction and Transition Plans; methods for evaluating student progress and instructional effectiveness. Prereq: EDSP 280 or perm; coreq: EDSP 290.

EDSP **378 Curriculum Development and Adaption** (3 cr). Orientation to philosophies of curriculum development; advantages and disadvantages of curricular approaches; selection, evaluation, and adaptations of curricula and materials; implementation and evaluation of an IIP and lessons in a school setting; models of collaboration and staffing strategies; legal and cultural issues. Prereq: EDSP 377; coreq: EDSP 390.

EDSP **390** (s) **Special Education/Field Experience** (1-3 cr, max 3). See EDSP 190.

EDSP **400** (s) **Seminar** (cr arr). Prereq: perm.

EDSP **403** (s) **Workshop** (cr arr). Prereq: perm.

EDSP **404** (s) **Special Topics** (cr arr).

EDSP **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program. Additional projects/assignments reqd for grad cr.

EDSP **421 Family and Community Involvement** (3 cr). Orientation to theory and practice for working with parents and families in the education of persons with disabilities; school and community systems and resources; parent-teacher communication, home-school operation, and use of school and community resources; skills in collaborating with other professions.

EDSP **425 Evaluation of Children and Youth** (2 cr). Assessment procedures for determining eligibility and identifying educational needs of students with disabilities, including legal issues and current trends. Prereq: EDSP 280 or perm; coreq: EDSP 290.

EDSP **450 Students with Behavioral and Emotional Issues** (3 cr). Trends, issues, and strategies for developing and implementing educational programs for students with various behavioral and emotional issues, including those who qualify as seriously emotionally disturbed; discussion of assessment, programming, legal, and cultural issues. Completion of field work in applied settings is required. Prereq: EDSP 280 or perm.

EDSP **477 Generating Curricula: Inclusive Classrooms** (3 cr). Philosophic assumptions guiding curriculum, use of an ecological approach for assessment, family involvement, and integrating developmental and academic perspectives; instructional strategies; legal issues. Prereq: EDSP 377 or perm; coreq: EDSP 390.

EDSP **480 Practicum** (7 or 14 cr). Dual majors enroll for 7 cr; single majors for 14 cr. Supervised classroom experience with students with disabilities. Graded P/F. Prereq: admission to teacher education, 2.5 GPA, and perm of dept. (Submit application to director of clinical experiences in teacher education by December 1 of school year before enrolling.)

EDSP **487 Language and Communication Development and Disorders** (3 cr). Overview of language, communication, and socio/emotional orientations and development; legal and cultural issues; use of informal assessments for teaching; models for collaboration; strategies for designing and implementing collaborative IIP's. Includes a field component and project. Prereq: EDSP 377.

EDSP **499** (s) **Directed Study** (cr arr). Prereq: perm.

EDSP **500 Master's Research and Thesis** (cr arr).

EDSP **501** (s) **Seminar** (cr arr). Prereq: perm.

EDSP **502** (s) **Directed Study** (cr arr). Prereq: perm.

EDSP **503** (s) **Workshop** (cr arr). Prereq: perm.

EDSP **504** (s) **Special Topics** (cr arr). Prereq: perm.

EDSP **505** (s) **Professional Development** (cr arr). See EDSP J405/J505.

EDSP **522 Advanced Evaluation Techniques** (3 cr). Evaluation tools, practices, and processes that extend beyond eligibility decisions to alternative assessments for early childhood, elementary, and secondary students with disabilities; integration of assessment and curriculum; legal, cultural, and ethical issues.

EDSP **540 Behavioral Analysis for Children and Youth** (3 cr). Application of learning theory to instruction; principles of behavior analysis with application to teaching; applied research techniques, ethical, legal, and cultural issues. Completion of field work in applied setting required.

EDSP **542 Families: Issues of Disability and Culture** (3 cr). Issues of families and individuals with disabilities; theories and strategies for forming partnerships with families across curricula, assessment, vocational, residential, and related areas; strategies for working with various cultural perspectives; legal issues. Completion of field work in applied setting required.

EDSP **543 Physical and Medical Issues** (3 cr). Legal and other issues; implications of physical and medical conditions; models for coordination of services provided in instructional settings; includes field component.

EDSP **548 Special Education Curriculum** (3 cr). Theories of curriculum; models of teaching, instructional strategies, evaluation of student progress and service delivery; issues and trends in special education.

EDSP **549 Language, Communication, and Social/Emotional Enhancement** (3 cr). Overview of theory and research findings; discussion of current issues, rationale, and intervention programs and strategies with an emphasis on social relations and interactions, legal mandates, and cultural issues. Includes a field component and project.

EDSP **560 Early Childhood Development and Assessment** (3 cr). Overview of development of young children; emphasis on a review of ethical/legal issues and methods and tools for evaluation and assessment, including process of developing an IFSP or IEP with functional goals.

EDSP **561 Early Childhood Special Education Instruction** (3 cr). Overview of instructional strategies and methods for teaching young children with disabilities in natural settings with age appropriate peers; emphasis on strategies for adapting the environment, schedule, and teaching methods to promote inclusion for young children; the link between curriculum and assessment is reviewed and expanded.

EDSP **562 Collaboration and Teaming** (3 cr). Overview and specific application of teaming practices that promote collaboration among disciplines and across agencies and settings serving persons with disabilities; interagency agreements, strategic planning for system change to promote collaboration, and methods for evaluating success.

EDSP **577 Generating Curricula: Issues and Strategies for Inclusive Classrooms** (3 cr). Philosophic issues, reform agendas and legal precedents guiding curriculum, ecological model for assessment, instructional strategies, and curricula integrated with developmental and academic perspectives; staffing strategies, family-school partnerships, administrative issues. Coreq: EDSP 597 (Practicum: Low Incidence).

EDSP **580 Consulting Teacher** (3 cr). Emphasis on models of consultation; role and responsibility of positions; skills necessary to establish productive, collaborative relationships with school personnel; systems change theory.

EDSP **582 Administration of Special Education** (3 cr). Overview of administration of special education including legal issues, leadership skills, systems change theory, management of personnel, budget, and effective use of human and fiscal resources.

EDSP **597** (s) **Practicum** (cr arr). Prereq: perm.

EDSP **598** (s) **Internship** (cr arr). Supervised field experience in an appropriate public or private agency. Graded P/F. Prereq: perm.

EDSP **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

EDSP **600 Doctoral Research and Dissertation** (cr arr).

Statistics

Allison R. Manson. Director, Division of Statistics (415 Carol Ryrie Brink Hall 83844-1104; phone 208/885-2929).

CREDIT LIMITATIONS: Credit is not given for both Stat 251 and 301 or for both Stat 251 and 271.

Stat **150 Introduction to Statistics** (3 cr). May be used as core credit in J-3-c. Intro to statistical reasoning with emphasis on examples and case studies; topics include design of experiments, descriptive statistics, measurement error, correlation and regression, probability, expectation, normal approximation, sample surveys, tests of significance.

Stat **251 Principles of Statistics** (3 cr). May be used as core credit in J-3-c. Cr is not given for Stat 251 after Stat 271 or Stat 301. Same as Math 253. Intro to statistical methods including design of statistical studies, basic sampling methods, descriptive statistics, probability and sampling distributions; inference in surveys and experiments, regression, and analysis of variance. Two lec and one 2-hr recitation period a wk (recitation periods are designed to provide students with experiences generating data, conducting statistical analyses, and interpreting results). Prereq: Math 137 or 143 or 160 or 170 or 2 yrs of high school algebra and perm.

Stat **262 Decision Analysis** (1 cr). May not be taken for credit after Stat 271. An overview of basic components of decision theory, conditional probability, and Bayesian analysis. Prereq or coreq: Stat 251.

Stat **271 Statistical Inference and Decision Analysis** (4 cr). Credit not allowed for both Stat 271 and 251 or for both Stat 271 and 301. Introduction to statistical methods including probability, decision theory, confidence intervals, hypothesis testing, correlation, regression, and nonparametric techniques. May involve evening exams. Prereq: Math 160 or 170.

Stat **ID&WS301 Probability and Statistics** (3 cr). WSU Math and Stat 360. Intended for engineers, mathematicians, and physical scientists. Cr not given for both Stat 251 and 301 or for both Stat 271 and 301. Intro to sample spaces, random variables, statistical distributions, hypothesis testing, basic experimental design, regression, and correlation. Prereq: Math 175.

Stat **ID401 Statistical Analysis** (3 cr). WSU Stat 401. Concepts and methods of statistical research including multiple regression, contingency tables and chi-square, experimental design, analysis of variance, multiple comparisons, and analysis of covariance. Prereq: Stat 251 or 271 or 301.

Stat **WS412 Biometry** (3 cr). WSU Stat 412.

Stat **WS-J420/WS-J520 Statistical Analysis of Qualitative Data** (3 cr). WSU Stat 420/520.

Stat **ID&WS422 Sampling Methods** (2 cr). WSU Stat 422. Simple and stratified random sampling, systematic sampling, cluster sampling, double sampling, area sampling, and estimation of sample size. Prereq: Stat 251 or 271 or 301.

Stat **ID428 Geostatistics** (3 cr). See GeoE 428.

Stat **433 Econometrics** (3 cr). See Econ 453.

Stat **437 Statistics for Business Decisions** (3 cr). See Bus 437.

Stat **ID&WS451 Probability Theory** (3 cr). See Math 451.

Stat **ID&WS452 Mathematical Statistics** (3 cr). See Math 452.

Stat **ID&WS-J453/ID&WS-J544 Stochastic Models** (3 cr). See Math J453/J538.

Stat **455 Applied Actuarial Science II** (0 cr). Review of mathematical and applied statistics in preparation for actuarial exam 2. Prereq: Stat 301 and Math 451-452.

Stat **456 Quality Management** (3 cr). See Bus 456.

Stat **499** (s) **Directed Study** (cr arr). Prereq: perm.

Stat **500 Master's Research and Thesis** (cr arr).

Stat **502** (s) **Directed Study** (cr arr). Prereq: perm.

Stat **503** (s) **Workshop** (cr arr). Prereq: perm.

Stat **504** (s) **Special Topics** (cr arr). Prereq: perm.

Stat **ID507 Experimental Design** (3 cr). WSU Stat 507. Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; confounding in factorial experiments; incomplete block designs; response surface methodology. Prereq: Stat 401.

Stat **ID&WS510 Regression** (3 cr). WSU Stat 535. Simple multiple and polynomial regression in matrix format; estimation, testing, and prediction; stepwise and other numerical methods, examination of residuals, weighted least squares and nonlinear models. Prereq: Stat 451 and Math 330.

Stat **ID514 Nonparametrics** (3 cr). WSU Stat 514. Conceptual development of nonparametric methods including one, two, and k-sample tests for location and scale, randomized complete blocks, rank correlation, and runs test; power, sample size, efficiency, and ARE. Prereq: Stat 401.

Stat **WS520 Statistical Analysis of Qualitative Data** (3 cr). See Stat J420/J520.

Stat **ID&WS521 Multivariate Analysis** (3 cr). WSU Stat 519. The multivariate normal, Hotelling's T^2, multivariate general linear model, discriminant analysis, covariance matrix tests, canonical correlation, and principle component analysis. Prereq: Stat 401.

Stat **525 Econometrics** (3 cr). See AgEc 525.

Stat **ID&WS533 Theory of Linear Models** (3 cr). WSU Stat 533. Theory of least squares analysis of variance models and the general linear hypothesis; small sample distribution theory for regression, fixed effects models, variance components models, and mixed models. Prereq: Stat 452 and Math 330.

Stat **WS539 Time Series** (3 cr). WSU Stat 516.

Stat **ID540 Computer Intensive Methods** (3 cr). Numerical stability, matrix decompositions for linear models, methods for generating pseudo-random variates, interative estimation procedures (Fisher scoring and EM algorithm), bootstrapping, scatterplot smoothers, Monte Carlo techniques including Monte Carlo integration and Markov chain Monte Carlo. Prereq: Stat 451, Math 330, and computer programming experience. (Alt/yrs)

Stat **ID&WS544 Stochastic Models** (3 cr). See Math J453/J538.

Stat **WS548-WS549 Statistical Theory I-II** (3 cr). WSU Math 568-569.

Stat **ID555 Statistical Ecology** (3 cr). See WLF 555.

Stat **ID&WS571 Reliability Theory** (3 cr). WSU Math 573. Statistical concepts; stochastic material strengths and lifetimes; strength versus safety analysis; reliability of coherent systems; maintenance models; complex systems. Prereq: Math 451. (Alt/yrs)

Stat **WS572 Data Analysis** (3 cr). WSU Stat 572.

Stat **597** (s) **Practicum** (cr arr). Prereq: perm.

Stat **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Systems Engineering

Ralph S. Budwig, Chair, Dept. of Mechanical Engineering (324I Engineering/Physics Bldg. 83844-0902; phone 208/885-6579).

SYS **510 Introduction to Systems Engineering** (3 cr). Overview of topics of systems engineering; system specification, design, development and implementation; mathematical tools used in design and evaluation of systems, as they pertain to reliability, maintainability, and feasibility.

Teacher Education

Cherie R. Major, Director, Div. of Teacher Education (404B Educ. Bldg. 83844-3082; phone 208/885-6587).

RELATED AREAS: For other offerings in the field of education, see adult, counselor, and technology education; agricultural education; art; business education; counseling; education; educational administration; family and consumer sciences; music; physical education; professional-technical education; and special education.

PREREQUISITE: For registration in upper-division courses in education, students must have been admitted to the teacher-education program and have a minimum GPA of 2.50, unless a higher average is stated as a prerequisite in the course description.

EDTE **200** (s) **Seminar** (cr arr). Prereq: perm.

EDTE **202 Introduction to Teaching Laboratory** (1 cr). Intro to the "world of teaching" through classroom observation and participation. Graded P/F. Two hrs of lab a wk. Prereq: sophomore standing; prereq or coreq: ED 201.

EDTE **203** (s) **Workshop** (cr arr). Prereq: perm.

EDTE **204** (s) **Special Topics** (cr arr). Prereq: perm.

EDTE **299** (s) **Directed Study** (cr arr). Graded P/F. Prereq: perm.

EDTE **C302 The Child and Society** (3 cr). Child in the social milieu; family, social group, community, school; social pressures and conditioning upon the child and the education process.

EDTE **326 Elementary School Mathematics Education** (3 cr). Specific methods, research, curricula, and media in teaching elementary-school mathematics. Prereq: Math 235 and 236.

EDTE **336 Reading in the Elementary School** (4 cr). Basic principles and techniques for teaching reading in the elementary school; emphasis on content, methods, and materials.

EDTE **338 Children's Literature** (3 cr). For each grade level; story plays, dramatizations, effective reading and telling children's stories, and their place in elementary school. Prereq: EDTE 336 or perm.

EDTE **375 Elementary School Art Methods** (3 cr). Techniques, materials, and processes used in teaching elementary art; relationship of art to the elementary curricula.

EDTE **381 Elementary School Music Methods I** (3 cr). See MusT 381.

EDTE **400** (s) **Seminar** (cr arr). Prereq: perm.

EDTE **402 Practicum: Field Experience in Public School Settings** (1 cr, max 2). Coreq: EDTE 420.

EDTE **403** (s) **Workshop** (cr arr). Prereq: perm.

EDTE **404** (s) **Special Topics** (cr arr). Prereq: perm.

EDTE **J405/J505** (s) **Professional Development** (cr arr). Professional development and enrichment of certificated school personnel. Cr earned will not be accepted toward grad degree programs, but may be used in a fifth-yr program. Additional projects/assignments reqd for grad cr.

EDTE **407 Elementary Foreign Language Methods** (3 cr). Observational experiences for preservice teachers combined with a classroom teaching practicum; discussion of teaching strategies for bilingual students, combining current research with valuable field experiences on which to base relevant/meaningful questions during the methods course. Prereq: students must be native-language speakers and/or have a teaching major or minor in foreign language.

EDTE **412 Multicultural/Bilingual Methods and Materials** (3 cr). Basic understanding of the issues surrounding the multicultural movement in today's school systems; introduction to a variety of different instructional programs designed to teach literacy skills to students from diverse cultural and linguistic backgrounds; particular emphasis on the historical, political, and multicultural perspectives of teaching diverse learners in the classroom. This course does not replace methods courses in education or ESL.

EDTE **J416/J516** (s) **College Teaching** (1-2 cr, max 2). Techniques for effective teaching at college level. Additional projects/assignments reqd for grad cr.

EDTE **418 Identifying and Correcting Mathematics Deficiencies** (3 cr). Study of teaching arithmetic including appropriate diagnostic-prescriptive strategies for correcting arithmetic deficiencies; microcomputers and calculators as instructional tools; consumer mathematics as an area of application.

EDTE **420 Language, Learning, and Literacy Development** (3 cr). Understanding of literacy development, the connections between language and learning, and how to support the use of reading, writing, listening, and talking to explore literature and other content areas in a diverse, collaborative, learning-centered community. Prereq: EDTE 338; coreq: EDTE 402 or perm.

EDTE **421 Elementary School Social Studies Methods** (2-3 cr). Specific methods, research, curricula, and media in teaching elementary-school social studies.

EDTE **J422/J522 Early Childhood and Kindergarten Education** (3 cr). Historical development, theoretical and practical applications in early childhood and kindergarten education. Additional projects/assignments reqd for grad cr. Two lec and 3-6 hrs of lab a wk.

EDTE **444 Elementary School Science Methods** (2-3 cr). Specific methods, research, curricula and media in teaching elementary-school science.

EDTE **J463/J563 Literacy Methods for Content Learning** (3 cr). Theory of and practical strategies for extending and reinforcing student learning of subject matter through reading and writing. Additional projects/assignments reqd for grad cr. Prereq: ED 314 or perm.

EDTE **466 Literacy Assessment and Intervention** (3 cr). Various assessment issues and procedures appropriate for monitoring student progress in reading and writing in the classroom; instructional methods for assisting readers at-risk. Prereq: EDTE 336 or 463.

EDTE **473 International Education Scene** (1-9 cr, max 9). Study-tour conducted by a UI faculty member to observe selected education systems and procedures in foreign countries. One cr a wk.

EDTE **ID&WS474 Secondary School Foreign Language Methods** (3 cr). WSU For L 474. Specific methods, research, curricula, and media in teaching secondary school foreign language. Prereq: ED 312, 313, 314, EDTE 463, or perm. (Alt/yrs)

EDTE **475 Secondary School English Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school English. Enrollment limited to 18 per section. Prereq: ED 312, 313, 314, EDTE 463, Engl 401, 441.

EDTE **476 Secondary School Social Studies Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school social studies. Prereq: ED 312, 313, 314, EDTE 463, or perm.

EDTE **477 Secondary School Science Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school science. Prereq: ED 312, 313, 314, EDTE 463, or perm.

EDTE **478 Secondary School Mathematics Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary school mathematics. Prereq: ED 312, 313, 314, EDTE 463, or perm.

EDTE **479 Secondary School Art Methods** (3 cr). Specific methods, research, curricula, and media in teaching secondary-school art. Prereq: EDTE 463 or perm. (Alt/yrs)

EDTE **499** (s) **Directed Study** (cr arr). Prereq: perm.

EDTE **500 Master's Research and Thesis** (cr arr).

EDTE **501** (s) **Seminar** (cr arr). Prereq: perm.

EDTE **502** (s) **Directed Study** (cr arr). Prereq: perm.

EDTE **503** (s) **Workshop** (cr arr). Prereq: perm.

EDTE **504** (s) **Special Topics** (cr arr). Prereq: perm.

EDTE **505** (s) **Professional Development** (cr arr). See EDTE J405/J505.

EDTE **507 Supervision of Instruction** (3 cr). Preparation of supervisors to aid teachers in the improvement of instruction.

EDTE **508 Standards-Based Curriculum in Science** (3 cr). Preparation of practicing teachers to implement standards-based curriculum and assessment; focus on teacher's discipline area of certification; examination and development of curriculum, inquiry strategies, assessment strategies, and teaching strategies aligned with the science standards.

EDTE **510 Philosophy of Education** (3 cr). Analysis of educational objectives, concepts, and theories.

EDTE **511 Planning and Administering the Curriculum** (3 cr). Management skills, concepts, and information needed to administer a district-wide curriculum; audits and other evaluations as part of the curriculum or program development cycle; duties and responsibilities of curriculum developers from a standpoint of several possible roles and assignments; criteria and basic concepts for an audit, including essential curriculum management components, alignment, quality control, standards, and data sources.

EDTE **512 Program Development and Evaluation** (3 cr). Types of instructional systems, systematic educational program development; evaluation methods, issues in measurement and evaluation design.

EDTE **513 History of Educational Thought** (3 cr). Writings that have influenced educational theory and practice.

EDTE **516** (s) **College Teaching** (1-2 cr, max 2). See EDTE J416/J516.

EDTE **521 Advanced Language Arts** (3 cr). Current research in instruction of the language arts, the reading/writing/listening/speaking connection, and teaching/learning; integrated language arts curriculum; assessment/evaluation strategies. Prereq: EDTE 420 or equiv or perm.

EDTE **522 Early Childhood and Kindergarten Education** (3 cr). See EDTE J422/J522.

EDTE **524 Models of Teaching** (3 cr). Examination of information processing, social interaction, personal, and behavioral models of teaching; emphasis on practical implementation of these models in teaching situations.

EDTE **525 Higher Education Accounting, Budgeting, and Finance** (3 cr). Provides a foundation for exploring the procedures and processes for providing financial support to institutions of higher education; the focus is on public institutions, and information about private institutions will be discussed as appropriate.

EDTE **526 Advanced Educational Psychology** (3 cr). Examination of selected psychological theories as applied to classroom management, values education, instructional and motivational strategies, learning and cognitive styles, gender differences, and related educational research.

EDTE **527 Instructional Theory into Practice** (3 cr). Applications of instructional theory to the areas: teaching to an objective; diagnostic and prescriptive teaching; teaching to enhance motivation; reinforcement, transfer, retention, and rate and degree of learning; enhancement of pupil self-concept; and critical decisions underlying such techniques.

EDTE **530 Ethical Leadership and Law in Education** (3 cr). Ethical and legal principles undergirding schools in the U.S.; statutory and case laws focusing on Idaho and surrounding states.

EDTE **551 Children's Literature and the Curriculum** (3 cr). How all phases of literature fit into and become a part of the curriculum; developing various areas of the curriculum based on literature; evaluation of literature, authors, and illustrators.

EDTE **552 Idaho Comprehensive Literacy Course** (3 cr). May not receive credit for both EDTE 552 and EDTE 553-555. The three core literacy standards required under Idaho law for teachers and administrators K-8 certification: language learning and literacy development, reading comprehension, instruction, reading assessment, and instructional intervention.

EDTE **553 Idaho Comprehensive Literacy Course: Language Learning and Literacy Development** (1 cr). May not receive credit for both EDTE 553 and 552. Refinement of teachers' knowledge of both the content and approaches for teaching decoding, morphology, and fluency as a part of a comprehensive, balanced reading program.

EDTE **554 Idaho Comprehensive Literacy Course: Reading Comprehension Research and Best Practices** (1 cr). May not receive credit for both EDTE 554 and 552. Review of the research base supporting reading comprehension instruction.

EDTE **555 Idaho Comprehensive Literacy Course: Reading Assessment Diagnosis and Remediation** (1 cr). May not receive credit for both EDTE 555 and 552. Enhancement of teachers' knowledge of reading assessment procedures and methods for remediating students' reading difficulties.

EDTE **ID&WS558 Writing Institute: NW Inland Writing Project** (6 cr). WSU Engl 592-593. Theory, research, and practice of kindergarten through college writing instruction including prewriting, drafting, revising, editing, publishing, grammar, mechanics, writing across the curriculum, error analysis, writing to learn; focus on writing for a variety of audiences and purposes (transactional, poetic, expressive); develops participant's own writing ability and ability to present in-service workshops for school districts. Four lec and four hrs of lab a wk. Prereq: Engl 401 or EDTE 420 or equiv or perm.

EDTE **561 Issues in Literacy** (3 cr). Current issues in literacy and their impact on classroom instructional practice.

EDTE **562 Advanced Reading Techniques** (3 cr). Consideration of the research basis for current instructional practices in reading and development of more effective techniques for teaching reading. Prereq: EDTE 336 or perm.

EDTE **563 Literacy Methods for Content Learning** (3 cr). See EDTE J463/J563.

EDTE **564 Advanced Children's Literature** (3 cr). Contemporary issues in children's literature; theoretical and research bases for current practice; reading children's literature; advanced study of genres, resources, and strategies for using children's books to better understand our multi-cultural society. Prereq: EDTE 338 or equiv, or perm.

EDTE **565 Psycholinguistics and Reading** (3 cr). Examining reading as a socio-psycholinguistic process; analyzing this process using miscue analysis; exploring ways to relate theory to practice. Prereq: EDTE 336 or perm.

EDTE **566 Corrective Reading** (3 cr). Nature, causes, and diagnosis of moderate reading difficulties; translation of diagnostic information into instructional practice. Prereq: EDTE 336, 562, or equivalent.

EDTE **572 Measurement and Evaluation** (3 cr). Improvement of testing, examination, and evaluation in schools; practice in making, giving, scoring, and interpreting tests; use of results in counseling.

EDTE **581 Systematic and Objective Analysis of Instruction** (4 cr). Supervision as a change process and analysis of supervisory cycle; application of supervisory cycle in K-12 classroom situations; designed to improve individual skill in analysis of instruction and to relate theory to practice. Graded P/F. Preregistration reqd; enrollment limited to 12 per section.

EDTE **597** (s) **Practicum** (cr arr). Graded P/F. Prereq: perm.

EDTE **598** (s) **Internship** (cr arr). Currently offered in public school teaching and college teaching. Graded P/F. Prereq: perm.

EDTE **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

EDTE **600 Doctoral Research and Dissertation** (cr arr).

Theatre Arts

J. David Lee-Painter, Chair, Dept. of Theatre Arts (118 Shoup Hall 83844-3074; phone 208/885-6465).

ADVANCED PLACEMENT: Courses in this subject field that are vertical in content are: TheA 105-106-305-306-372-373-407-408; TheA 103-104-201-202.

TheA **101 Introduction to the Theatre** (3 cr). May be used as core credit in J-3-d. For nonmajors. Building an appreciation for theatre as an art form through understanding the creative process of the playwright, the director, the designer, and the actor. Attendance at theatre productions reqd.

TheA **102 Theatrical Make-up** (3 cr). Creation of the make-up mask through sculpting with paint. Limited to 20 students. Two lec and 2 hrs of lab a wk. Prereq: perm.

TheA **103 Theatre Technology I** (2 cr). Intro to theatre production spaces, shop tools, construction materials, and stage equipment; theories and methods used in lighting and in the construction of scenery. Coreq: TheA 190.

TheA **104 Theatre Technology II** (2 cr). Methods of costume construction techniques; intro to masks, sewing, millinery, and costume craft skills. Coreq: TheA 190.

TheA **105-106 Basics of Performance** (3 cr). Intro to performance; techniques of relaxation, observation, and justification; work in improvisation, sensory exploration, image-making, and beginning textual analysis; initial monologue and scene performance. One lec and 2 hrs of lab a wk. Prereq for 106: TheA 105 or perm.

TheA **110 Convocation** (0 cr). One 1-hr weekly seminar.

TheA **125 Summer Theatre I** (2-4 cr, max 4). Theatre production, including public presentation of several plays. Max 10 cr in TheA 125 and 395 combined. Prereq: perm of dept.

TheA **150 Performance Lab I** (1 cr). Fundamentals of voice, speech, and movement techniques for the stage. Two hrs of lab a wk.

TheA **151 Performance Lab II** (1 cr). Continuation of TheA 150; additional techniques in voice, speech, and movement for the stage. Two hrs of lab a wk.

TheA **190** (s) **Theatre Practice I** (1 cr, max arr). Open to nonmajors. Practical experience in all aspects. Six hrs of lab a wk.

TheA **200** (s) **Seminar** (cr arr). Prereq: perm.

TheA **201 Scene Design I** (3 cr). Development of basic skills in visualization, period research, graphic techniques, and script interpretation in scenery.

TheA **202 Costume Design I** (3 cr). Costume design skills including script/character analysis, fabric choices, design process, period research, and drawing/painting skills.

TheA **203** (s) **Workshop** (cr arr). Prereq: perm.

TheA **204** (s) **Special Topics** (cr arr). Prereq: perm.

TheA **205 Lighting Design I** (3 cr). Basic equipment, lighting methods, and theory for theatrical production; basic drafting of realized and hypothetical productions.

TheA **210 U.S. Contemporary Theatre** (3 cr). An in-depth examination of contemporary U.S. theatre artists and their work including modern practitioners' methods and philosophies.

TheA **299** (s) **Directed Study** (cr arr). Prereq: perm.

TheA **305 Intermediate Acting** (3 cr). Exploration of Stanislavsky System focused in work on sense and emotional memory, inner monologue, and imagery techniques; emphasis on group improvisation and theatre games; work in action and scene study; performances of selected scenes and monodramas. One lec and 3 hrs of lab a wk. Prereq: TheA 105-106.

TheA **306 Intermediate Acting** (3 cr). Studies in American method acting as exemplified by its leading practitioners (Strasberg, Hagen, and Meisner); textual analysis and individual acting problems; continuing emphasis in scene preparation. One lec and 3 hrs of lab a wk. Prereq: TheA 305 or perm.

TheA **320 Theatre Management** (2 cr). Exploration of stage management and standard management practices relating to theatre production and business, funding, and public relations.

TheA **350 Performance Lab III** (cr arr). Continuation of TheA 151; advanced techniques in voice, speech, and movement for the stage. Two hrs of lab a wk. Prereq: TheA 150 and 151 or perm.

TheA **361 Technical Direction** (3 cr). Technical direction and planning for single and multiple set theatre productions; includes shop and personnel management techniques, drafting, budgets, scheduling, and organization.

TheA **371 Play Analysis** (3 cr). Critical intro to plays as drama and theatre; an approach to tragic and comic genres; major dramatists of the 20th century culminating in an analysis of contemporary theatre styles.

TheA **372 Methods in Characterization** (3 cr). Developing a character through work in centers, physicalization, and emotional exploration as well as character essences based on studies in animals, paintings, costumes, music, and props. One lec and 3 hrs of lab a wk. Prereq: TheA 306 or perm. (Alt/yrs)

TheA **373 Advanced Acting** (3 cr). Theory and practice of comedy playing: exercises, improvisations, and performances in comic genres, farce through comedy of manners; intro to period comedy. One lec and 3 hrs of lab a wk. Prereq: TheA 306 or perm. (Alt/yrs)

TheA **WS381 Creative Drama** (3 cr). WSU Theat 464.

TheA **390** (s) **Theatre Practice II** (cr arr). Open to nonmajors. Continuation of TheA 190. Practical experience in all aspects of theatre.

TheA **395 Summer Theatre II** (2-8 cr, max 8). Continuation of TheA 125. Max 10 cr in TheA 125 and 395 combined. Prereq: perm of dept.

TheA **400** (s) **Seminar** (cr arr). Prereq: perm.

TheA **403** (s) **Workshop** (cr arr). Prereq: perm.

TheA **404** (s) **Special Topics** (cr arr). Prereq: perm.

TheA **405 Individual Instruction in Performance** (cr arr). Individualized coaching in performance. One hr of lab a wk per cr. Prereq: perm of dept.

TheA **406 Design Studio** (cr arr). Advanced design studio. Prereq: TheA 201, 202, 205.

TheA **J407/J507 Acting Shakespeare** (3 cr). Shakespearean texts; emphasis on interpreting and performing conventions of his prose and verse plays, as well as a study of the world view of Elizabethan England. Additional projects/assignments reqd for grad cr. One lec and 3 hrs of lab a wk. Prereq: TheA 306 or perm. (Alt/yrs)

TheA **J408/J508 Styles of Acting** (3 cr). Study and performance of acting styles based on cultural backgrounds, manners, and customs of a period; selected historical and 20th century styles; continued work in acting Shakespeare. Additional projects/assignments reqd for grad cr. One lec and 3 hrs of lab a wk. Prereq: TheA 306 or perm. (Alt/yrs)

TheA **J410/J510 Costume Design II** (3 cr, max 12). Emphasis on developing characterization, stylization, and fabric choice; explore advanced rendering techniques; continuation of portfolio development. Additional projects/assignments reqd for grad cr. Three lec and 1 hr of lab a wk. Prereq: TheA 202 or perm.

TheA **463 Costume Construction** (3 cr). Development of two-dimensional rendering into a three-dimensional realized costume; emphasis on advanced construction techniques, fabric selection, and costume crafts. Prereq: TheA 104 or perm.

TheA **464 Scenographic Techniques** (3 cr). Practical survey of graphics used in design and execution of scenery for the stage, including drafting, perspective, front and rear elevations, painters elevations, and properties design and drafting. Four hrs of lab a wk. Prereq: TheA 202.

TheA **465 Advanced Scene Design** (3 cr). Development of a conceptual approach to design through assorted design projects. Prereq: TheA 464.

TheA **J467-J468/J567-J568 The Theatre** (3 cr). Survey of European and American theatres, dramatists, and actors from the Greeks to Ibsen. Additional projects/assignments reqd for grad cr. Prereq: TheA 371 or perm of dept. (Alt/yrs)

TheA **J469/J569 Modern Theatre** (3 cr). History of the movements, personalities, and representative plays of the modern theatre from Ibsen, Strindberg, and Chekhov through the present. Additional projects/assignments reqd for grad cr. Prereq: TheA 371 or perm of dept.

TheA **J471-J472/J571-J572 Directing** (3 cr). TheA J471/J571: preparation of a play from casting to performance. TheA J472/J572: staging and interpretation of a play; developing a production concept; coaching actors. Additional projects/assignments reqd for grad cr. Three lec and one hr of lab a wk. Prereq or coreq for TheA J471/J571: TheA 305; prereq or coreq for TheA J472/J572: upper-division acting course at 300/400 level.

TheA **J484/J584 Advanced Stage Lighting** (3 cr). Advanced lighting design theories and practice through design of assorted productions in realistic drama, dance, arena, thrust, and mystical theatre. Additional projects/assignments reqd for grad cr. Prereq: TheA 205 or perm.

TheA **498** (s) **Internship** (cr arr). Prereq: perm.

TheA **499** (s) **Directed Study** (cr arr). Prereq: perm.

TheA **500 Master's Research and Thesis** (cr arr).

TheA **501** (s) **Seminar** (cr arr). Prereq: perm.

TheA **502** (s) **Directed Study** (cr arr). Prereq: perm.

TheA **503** (s) **Workshop** (cr arr). Prereq: perm.

TheA **504** (s) **Special Topics** (cr arr). Prereq: perm.

TheA **507 Acting Shakespeare** (3 cr). See TheA J407/J507.

TheA **508 Styles of Acting** (3 cr). See TheA J408/J508.

TheA **509 Summer Theatre III** (2-8 cr, max 8). Theatre production, including public presentation of several plays; emphasis on responsibilities of the grad student including assisting the director, serving as crewhead, and acting. Prereq: 20 cr in the theatre arts and perm of dept.

TheA **510 Costume Design II** (3 cr, max 12). See TheA J410/J510.

TheA **511** (s) **MFA Acting Studio** (2 cr, max 18). Advanced individual study in performance.

TheA **512** (s) **MFA Directing Studio** (2 cr, max 18). Advanced individual study in directing, including work in staging, styles, and interpretation.

TheA **513** (s) **MFA Design Studio** (2 cr, max 18). Advanced individual study in all areas of theatrical design with emphasis on portfolio development. One lec and 2 hrs of lab a wk.

TheA **514** (s) **MFA Production Studio** (2 cr, max 18). Advanced individual study in all areas of technical theatre production and management with emphasis on portfolio development. One lec and 2 hrs of lab a wk.

TheA **515 MFA Jury/Portfolio Review** (1 cr, max arr). Preparation and evaluation of performance monologues and design portfolios. Coreq: MFA studio courses.

TheA **520 Advanced Directing** (3 cr). Techniques and styles of major 20th-century directors; work in directing genres of tragedy, drama, melodrama, comedy, and the absurd.

TheA **522 Directing the Period Play** (3 cr). Interpretation and staging of classical texts in major dramatic periods; social and cultural view of each period.

TheA **535 Production Design** (3 cr, max 12). Design responsibility for a mainstage production. Prereq: perm of dept.

TheA **567-568 The Theatre** (3 cr). See TheA J467-J468/J567-J568.

TheA **569 Modern Theatre** (3 cr). See TheA J469/J569.

TheA **571-572 Directing** (3 cr). See TheA J471-J472/J571-J572.

TheA **584 Advanced Stage Lighting** (3 cr). See TheA J484/J584.

TheA **596 MFA Exit Project** (3 cr). Culminating creative project for MFA candidates. Prereq: perm of dept.

TheA **597** (s) **Practicum** (cr arr). Prereq: perm.

TheA **598** (s) **Internship** (cr arr). Prereq: perm.

TheA **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

Veterinary Science

Richard A. Battaglia, Head, Dept. of Animal and Veterinary Science (213 Ag. Sc. Bldg. 83844-2330; phone 208/885-6345; email dwillis@uidaho.edu).

Courses in this subject field that have a WS prefix are open only to students who have veterinary science graduate student status or by permission of the director of the Idaho faculty of the WOI Regional Program in Veterinary Medical Education.

VS **499** (s) **Directed Study** (cr arr). Prereq: perm.

VS **500 Master's Research and Thesis** (cr arr).

VS **501** (s) **Seminar** (cr arr). Prereq: perm.

VS **502** (s) **Directed Study** (cr arr). Prereq: perm.

VS **504** (s) **Special Topics** (cr arr). Prereq: perm.

VS **512 Principles of Comparative Pathology** (4 cr). Gross and micro pathology, histological techniques, neoplasia. Prereq: Zool 324, 427 or equivalent, or perm. (Alt/yrs)

VS **WS587 Hospital Rotation** (3 cr, max 6). WSU V MS 587.

VS **WS592 Advances in Immunobiology** (1 cr, max arr). WSU V Mic 592.

VS **598** (s) **Internship** (cr arr). Prereq: perm.

Wildlife Resources

George W. LaBar, Head, Dept. of Fish and Wildlife Resources (105 FWR Bldg. 83844-1136; phone 208/885-6434).

PREREQUISITE: Courses in this subject field numbered above 299 are not open to any undergraduate student who is on academic probation.

WLF **102 The Wildlife Profession** (1 cr). Overview of the field of wildlife conservation including kinds of professional positions, duties of wildlifers, employment opportunities, and educational preparation. (Fall only)

WLF **200** (s) **Seminar** (cr arr). Prereq: perm.

WLF **203** (s) **Workshop** (cr arr). Prereq: perm.

WLF **204** (s) **Special Topics** (cr arr). Prereq: perm.

WLF **206** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

WLF **221 Natural Resources Ecology** (3 cr). Same as Rnge 221. Principles of plant and animal ecology with emphasis on concepts applied in natural resources; includes interactions between organisms and their physical environment, evolutionary processes, populations, communities, energy flow and ecosystems, and conservation biology. Recommended preparation: Biol 202 and 203. Prereq: Biol 100 or 201, or perm.

WLF **290 Fish and Wildlife Ecology, Management, and Conservation** (3 cr). Open to non-majors only. Application of biological ecological principles and concepts to conservation and management of fish and wildlife populations and their habitats.

WLF **299** (s) **Directed Study** (cr arr). Prereq: perm.

WLF **302 Wildland Field Ecology** (2 cr). Field studies of ecological and socio-political processes in terrestrial, aquatic, and human ecosystems at individual, population, community, landscape, regional, and global scales; application of ecological principles to integrated natural resource management. Two weeks all-day lec/lab immediately following spring semester; overnight field excursions required. Prereq: For/RRT 235, and For/Rnge/WLF 221 or Biol 331. (Summer only)

WLF **305 Field Research in Wilderness Ecology** (3 cr). Same as RRT 305. Students assist wilderness scientists in current wilderness research conducted from UI Wilderness Field Station, located at Taylor Ranch in the heart of the Frank Church River of No Return Wilderness of central Idaho; field work augmented by lectures and discussions with wilderness scientists and managers, and assigned readings; three-week summer course. Prereq: general ecology or perm.

WLF **314 Wildlife Ecology I** (3 cr). Ecology and natural history of birds, mammals, reptiles, and amphibians. Prereq: For/Rnge/WLF 221 or Biol 331. (Fall only)

WLF **315 Wildlife Ecology I Laboratory** (1 cr). Techniques associated with wildlife research and local habitats and areas where wildlife species are present. Three hrs of lab a wk; field exercises. Prereq or coreq: WLF 314. (Fall only)

WLF **316 Wildlife Ecology II** (4 cr). Application of principles of ecology to conservation and management of wildlife in natural and altered habitats. Three lec and one lab a wk; three days of field trips. Prereq: WLF 314 and 315 or perm. (Spring only)

WLF **396 Wilderness Research Internship** (3 cr). Same as RRT 396. Nine-week summer internship at UI Wilderness Field Station, located at Taylor Ranch in the heart of the Frank Church River of No Return Wilderness of central Idaho; research honorarium awarded; lodging and transportation to field station provided. Enrollment limited to 2-3 students based on available funding. Prereq: competitive selection by faculty committee based on research proposal, GPA, and resume; junior standing.

WLF **398** (s) **Renewable Natural Resources Internship** (cr arr). Supervised field experience with an appropriate public or private agency. Reqd for cooperative education students. Graded P/F. Prereq: perm of dept.

WLF **401** (s) **Practicum in Tutoring** (1 cr, max 2). Tutorial services performed by advanced students under faculty supervision. Graded P/F. Prereq: perm.

WLF **403** (s) **Workshop** (cr arr). Prereq: perm.

WLF **404** (s) **Special Topics** (cr arr). Prereq: perm.

WLF **406** (s) **Study Abroad** (cr arr). Prereq: perm of dept.

WLF **WS419** (s) **Topics in Natural Resource Sciences** (1-3 cr, max 9). WSU NATRS 419.

WLF **WS-J431/WS-J531 Wildlife Nutrition** (3 cr). WSU NATRS 431/531. Nutritional requirements and interactions of wildlife populations.

WLF **ID&WS440 Conservation Biology** (3 cr). WSU NATRS 450. Patterns of biological diversity; factors producing changes in diversity; values of diversity; management principles applied to small populations, protected areas, landscape linkages, biotic integrity, restoration, legal issues, and funding sources. Prereq: WLF/For/Rnge 221 or Biol 331 or perm.

WLF **441 Behavioral Ecology** (3 cr). Principles of behavioral ecology in animals (vertebrates and invertebrates); using extensive theoretical and empirical findings in ethology, sociobiology, evolution, and ecomorphology to focus on questions pertaining to animal adaptation and learning; scientific literature in behavioral ecology; link between behavioral ecology and wildlife conservation and management. Prereq: Biol 331 or For/Rnge/WLF 221, or perm. (Alt/yrs; spring only)

WLF **443 Multi-Species Interactions** (3 cr). Compare and contrast competitive, host-parasite, predator-prey, and plant-herbivore interactions in terms of evolution, behavior, and population dynamics. Prereq: WLF 314 or equivalent. (Alt/yrs; spring only)

WLF **ID445 Nongame Management** (2 cr). WSU Zool 445. Review of principles, methodology, and concepts applied to management and conservation of nongame wildlife in relation to current land-use practices. Prereq: Zool 482, 483, or perm. (Spring only)

WLF **446 Diseases of Wild Birds and Mammals** (2 cr). Same as Fish 446. Epidemiology, pathology, treatment, and control. Prereq: perm. (Alt/yrs)

WLF **448 Fish and Wildlife Population Ecology** (4 cr). Attributes, natality, mortality, growth forms, fluctuations, and regulation of fish and wildlife populations. Three lec and one lab a wk. Prereq: Stat 251, course in vertebrate ecology. (Fall only)

WLF **470 Interdisciplinary Natural Resource Planning** (3 cr). Land use planning and decision-making theories, legislation and techniques applied to natural resource case studies from public and private sector, including impact assessment, creation and valuation of alternatives, and public involvement. Two hrs of lec, 2 hrs of lab, and 1 hr of recitation a wk; may include one 1-day field trip. Prereq: senior standing, For/RRT 235, For/Rnge/WLF 221, For/Rnge/ForP/RRT/WLF/Fish 302; or perm.

WLF **485 Natural Resources Ecology and Conservation Biology Internship** (2 cr). Professional work experience in natural resources ecology and conservation biology; learning objectives and a specific plan for the internship experience must be developed in For 480 before starting the internship; after completing the internship, students will prepare oral and written presentation of their work experience in For 481. Prereq or coreq: For 480.

WLF **492 Wildlife Management** (4 cr) (WLF 442). Review of social and biological context for current practice of wildlife management. Three lec and one lab a wk; two days of field trips. Prereq: WLF 316, Bot 241 or equiv, Zool 482 and 483, and WLF 448, or perm. (Spring only)

WLF **493 Environmental Law** (2 cr). Same as Rnge 493. Laws governing resource administration and environmental impacts. Prereq: senior standing. (Fall only)

WLF **495** (s) **Wildlife Seminar** (1-2 cr). Discuss integrating biological, social, political, economic, and philosophic aspects of wildlife problems. (Fall only)

WLF **497 Senior Thesis** (1-3 cr, max 6). Open only to majors in wildlife resources. Preparation of thesis, exhibition, video, computer program, multimedia program, or other creative presentation based on research conducted under the guidance of a faculty mentor. Prereq: cumulative GPA of at least 3.5 in all college courses, completion of at least 90 credits, and permission of a faculty mentor.

WLF **499** (s) **Directed Study** (cr arr). For the individual student; conferences, library, field, or lab work. Prereq: senior standing, GPA 2.5, and perm.

WLF **500 Master's Research and Thesis** (cr arr).

WLF **501** (s) **Seminar** (cr arr). Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Prereq: perm.

WLF **502** (s) **Directed Study** (cr arr). Prereq: perm.

WLF **503** (s) **Workshop** (cr arr). Selected topics in the conservation and management of natural resources. Prereq: perm.

WLF **504** (s) **Special Topics** (cr arr). Prereq: perm.

WLF **515 Advanced Topics in Conservation Biology** (2 cr). Development of a depth of understanding of the basic principles of conservation biology through study of case histories of endangered species recovery efforts; political as well as biological and economic aspect of recovery efforts through a series of lectures and discussions with exposure to new developments in the fast evolving field of conservation biology; emphasis on issues with which professors or visiting lecturers have personal research and experience. (Alt/yrs; spring only)

WLF **WS519** (s) **Advanced Topics in Natural Resources** (1-3 cr, max 6). WSU NATRS 519.

WLF **ID520 Human Dimensions of Wildlife Management** (2 cr). Same as RRT 520. WSU NATRS 521. Exploration of elements involved in the management of wildlife for nonconsumptive activities, impacts of such activities on wildlife, the role of national parks and protected areas in providing wildlife viewing opportunities, and public attitudes toward wildlife species. (Alt/yrs; spring only)

WLF **WS531 Wildlife Nutrition** (3 cr). See WLF WS-J431/WS-J531.

WLF **540 Conservation Genetics** (3 cr). Basic principles of population genetics and phylogenetics and their applications to the field of conservation genetics and natural resource management; case studies and examples from current literature; topics include genetic diversity, inbreeding, population structure, gene flow, genetic drift, molecular phylogenetics, and hybridization. (Alt/yrs; fall only)

WLF **541 Advanced Population Biology** (2 cr). Readings and discussion of current theories of population control, their biological basis, and applications to wildlife populations. Prereq: WLF 448 or perm. (Alt/yrs; fall only)

WLF **542 Waterfowl Management** (3 cr). Ecology and management of species using wetland habitats. Lecture-discussion periods, field labs; three days of field trips. Prereq: ecology, population dynamics, and aquatic plants. (Alt/yrs; fall only)

WLF **543 Fish and Wildlife Population Analysis** (3 cr). Quantitative analysis of fish and wildlife habitat, diet, harvest, population density, survival, and natality data; development and application of population models in fish and wildlife management. Two lec and 3 hrs of lab a wk. Prereq: WLF 448, Stat 401 and CS 112 or perm. (Alt/yrs; fall only)

WLF **544 Large Mammal Ecology** (3 cr). Readings and discussion on large mammal management and ecology. One 3-hr lec a wk; two days of field trips. Prereq: WLF 492 or perm. (Spring only)

WLF **545 Wildlife Habitat Ecology** (2 cr). Reading and discussion on synecological relationships of wildlife habitats. Two days of field trips. Prereq: WLF 492 or perm, animal and plant ecology. (Alt/yrs; fall only)

WLF **ID546 Upland Game Ecology** (2 cr). WSU NATRS 546. Ecology and management of forest and rangeland wildlife species. Three days of field trips. Prereq: perm. (Alt/yrs; fall only)

WLF **ID547 Predator-Prey Relationships** (2 cr). WSU NATRS 547. Exploration of theoretical and empirical relationships between predators and prey. Prereq: perm. (Alt/yrs; spring only)

WLF **WS548 Evolutionary Ecology** (3 cr). WSU Zool 548.

WLF **ID555 Statistical Ecology** (3 cr). Same as Stat 555. WSU Stat 555. Stochastic models in ecological work; discrete and continuous statistical distributions, birth-death processes, diffusion processes; applications in population dynamics, population genetics, ecological sampling, spatial analysis, and conservation biology. Prereq: Math 451 or perm. (Alt/yrs; spring only)

WLF **WS588** (s) **Advanced Topics in Wildlife** (1-3 cr, max 10). WSU NATRS 588.

WLF **597** (s) **Practicum** (cr arr). Prereq: perm.

WLF **598** (s) **Internship** (cr arr). Prereq: perm.

WLF **599** (s) **Research** (cr arr). Research not directly related to a thesis or dissertation. Prereq: perm.

WLF **600 Doctoral Research and Dissertation** (cr arr). Prereq: admission to the doctoral program in "forestry, wildlife and range sciences" and perm of dept.

Women's Studies

Joan M. West, Coordinator, Women's Studies Program (308 Admin. Bldg. 83844-3174; phone 208/885-7866).

WmSt **201 Women, Culture, and Society: Introduction to Women's Studies** (3 cr). Survey of and introduction to the study of women's lives; thematic examination of the diversity of women's experiences in families, at work, with the law, in health care, in literature, in the media, in language; exploration of differences and similarities, including ethnicity, sexuality, class, and age.

Zoology

R. Francis Rosenzweig, Interim Chair, Dept. of Biological Sciences (252 Life Sc. Bldg. 83844-3051; phone 208/885-6280).

Zool **120 Human Anatomy** (4 cr). Study of the skeletal, muscular, nervous, circulatory, respiratory, urinary, digestive, endocrine, and reproductive systems of the human body with primary emphasis on anatomy; lab consists of studying human gross anatomy models and prosected cadavers. Three lec and one 3-hr lab a wk.

Zool **121 Human Physiology** (4 cr). Study of the basic physiology of the skeletal, muscular, nervous, circulatory, respiratory, urinary, digestive, endocrine, and reproductive systems of the human body. Three lec and one 3-hr lab a wk. Prereq: Zool 120.

Zool **202 General Zoology** (4 cr). See Biol 202.

Zool **324 Comparative Vertebrate Anatomy** (4 cr). General vertebrate anatomy and evolutionary changes in organ systems. Two lec and two 3-hr labs a wk. Prereq: Biol 202 and junior standing.

Zool **398** (s) **Internship** (1-3 cr, max 3). Supervised internship in professional biological, non-university settings, integrating academic study with work experience; requires formal written plan of activities to be approved by academic adviser and department chair before engaging in the work; a final written report will be evaluated by on-campus faculty. Graded P/F. Prereq: perm.

Zool **ID-J411/ID-J511 Comparative Vertebrate Reproduction** (3 cr). WSU Zool 451/551. Physiology of major events in reproductive cycles of vertebrates with emphasis on mammals. Cr earned in Zool 511 by completion of additional reading in journals, take-home exam with each hr exam, and term paper. Prereq: Biol 202.

Zool **J414/J514 Cell Physiology** (3 cr). Experimental investigation of cells. Cr earned in Zool 514 by completion of research proposal. Prereq: Chem 275 or 277, MMBB 380, and Biol 201; Biol 202 recommended.

Zool **J417/J517 Endocrine Physiology** (3 cr). See AVS J451/J551.

Zool **J423/J523 Comparative Vertebrate Physiology** (4 cr). Comparative physiology of the major organ systems found in vertebrates. Credit earned in Zool 523 by completion of additional projects/assignments. May involve some evening exams. Prereq: Biol 202 and Chem 275 or 277.

Zool **ID427 Vertebrate Histology and Organology** (4 cr). WSU Zool 421. Microscopic anatomy of tissues and major mammalian organs. Two lec and two 3-hr labs a wk. Prereq: Zool 120 or Biol 202.

Zool **435 Limnology** (4 cr). See Fish 415.

Zool **J461/J561 Neurobiology** (3 cr). Study of the nervous system, with an emphasis on the basic mechanics of neuronal signaling, the function of sensory systems, and neural development. Cr earned in Zool 561 by completing a thorough review (summary and critique) of a recent research paper and preparing a brief oral presentation on a topic distinct from that of the term paper. Prereq: Biol 202; Phys 111-112 and Chem 275 or 277 and 372 are recommended.

Zool **J472/J572 Developmental Biology** (3 cr). Analysis of developmental and regulatory mechanisms at cellular and molecular level during embryogenesis. Cr earned in Zool 572 by completion of additional reading, take-home exam, and term paper. Prereq: Biol 202.

Zool **473 Comparative Embryology Lab** (1 cr). Descriptive embryology of a number of organisms with emphasis on amphibians, birds, and mammals. One 3-hr lab a wk. Prereq or coreq: Zool J472/J572.

Zool **478 Animal Behavior** (3 cr). Evolution, causation, development, and function of behavior in vertebrates and invertebrates. Prereq: Biol 202.

Zool **J481/J581 Ichthyology** (4 cr). Zool 481 same as Fish 411. Anatomy, taxonomy, physiology, distribution, and ecological relationships of fishes. Cr earned in Zool 581 by completion of an additional research paper or project. Three lec and one 3-hr lab a wk; one half-day field trip. Prereq: Biol 202.

Zool **482 Natural History of Birds** (3 cr). Evolution, systematics, distribution, and biology of birds. Two lec and one 3-hr lab a wk; two 1-day field trips. Prereq: Biol 202.

Zool **483 Natural History of Mammals** (3 cr). Evolution, systematics, distribution, and biology of mammals. Two lec and one 3-hr lab a wk; one field trip. Prereq: Biol 202.

Zool **J484/J584 Invertebrate Zoology** (4 cr). Morphology of freshwater, marine, and terrestrial invertebrates and phylogeny of major groups. Cr earned in 584 by completion of extra project requiring a report. Three lec and one 3-hr lab a wk. Prereq: Biol 202.

Zool **494 Insect Anatomy and Physiology** (4 cr). See Ent J484/J584

Zool **497 Practicum in Physical Therapy** (1 cr, max 4). Minimum of two hrs a wk of practical experience in a PT clinic. Graded P/F. Prereq: jr standing in pre-PT or related studies and perm of UI allied health adviser.

Zool **499** (s) **Directed Study** (cr arr). Prereq: perm.

Zool **500 Master's Research and Thesis** (cr arr).

Zool **501** (s) **Seminar** (cr arr). Prereq: perm.

Zool **502** (s) **Directed Study** (cr arr). Prereq: perm.

Zool **503** (s) **Workshop** (cr arr). Prereq: perm.

Zool **504** (s) **Special Topics** (cr arr). Prereq: perm.

Zool **ID505 Generation, Degeneration, and Regeneration in Nervous System** (2 cr). WSU Zool 506.

Zool **507 Readings in Neurobiology** (1 cr, max arr). Discussion of current neurobiology literature. Prereq or coreq: Zool J461/J561 or 505 or MedS 532.

Zool **WS510 Domestic and Exotic Animal Behavior** (2 cr). WSU V M 510/Neuro 526.

Zool **ID511 Comparative Vertebrate Reproduction** (3 cr). See Zool J411/J511.

Zool **514 Cell Physiology** (3 cr). See Zool J414/J514.

Zool **WS515 Advanced Neuroanatomy** (4 cr). WSU Neuro/V An 513.

Zool **517 Endocrine Physiology** (3 cr). See AVS J451/J551.

Zool **523 Comparative Vertebrate Physiology** (4 cr). See Zool J423/J523.

Zool **WS528 Behavioral Mechanisms in Physiology** (3 cr). WSU Neuro/V Ph 528.

Zool **WS529 Cellular and Molecular Neurobiology** (4 cr). WSU Neuro/V Ph 529.

Zool **WS530 General and Comparative Neurophysiology** (4 cr). WSU Neuro 530.

Zool **WS534 Advanced Neurophysiology** (3 cr). WSU Neuro/V Ph 534.

Zool **WS537 Physiology and Biochemistry of Neuropeptides** (3 cr). WSU Neuro/V Ph 537.

Zool **WS543 Ion Channels** (3 cr). WSU Neuro 543.

Zool **WS544 Neurobiology of Drug Abuse** (3 cr). WSU Neuro 544.

Zool **WS558 Molecular and Cellular Reproduction** (4 cr). WSU GenCB 558. Prereq: AVS 452 or Zool J411/J511.

Zool **561 Neurobiology** (3 cr). See Zool J461/J561.

Zool **WS564 Brain-Endocrine Interactions** (3 cr). WSU Neuro/V Ph 564.

Zool **572 Developmental Biology** (3 cr). See Zool J472/J572.

Zool **581 Ichthyology** (4 cr). See Zool J481/J581.

Zool **584 Invertebrate Zoology** (4 cr). See Zool J484/J584.

Zool **600 Doctoral Research and Dissertation** (cr arr).

Faculty

Robert A. Hoover, President; Brian L. Pitcher, Provost; Deborah A. Frincke, Chair of the Faculty Council (1999-2000); Peter A. Haggart, Secretary of the Faculty.

The date following a name indicates the beginning of service at the university. When two dates are given, the second, in parentheses, is the date of promotion to the rank shown.

Graduate faculty members are identified with a pound sign (#).

Off-campus personnel are identified with an asterisk (*).

*RICHARD D. ABBOTT, 1991, Affiliate Assistant Professor of Chemical Engineering, Moscow; B.S., 1972, Montana State; M.S., 1974, Ph.D., 1983, Idaho.

*ERNEST D. ABLES, 1973, Professor Emeritus of Wildlife Resources (Associate Dean for Academics and Continuing Education, College of Forestry, Wildlife and Range Sciences, 1974-82, 1990-93; Head, Department of Fish and Wildlife Resources, 1982-84, 1985-89, 1994-95; Acting Dean, 1984-85); B.S., 1961, Oklahoma State; M.S., 1964, Ph.D., 1968, Wisconsin. Emeritus since 1996.

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TERRY P. ABRAHAM, 1984 (1991), Head, Special Collections and Archives, University Library, with rank of Professor; B.A., 1965, Washington; M.F.A., 1968, Washington State; M.L.S., 1970, Oregon.

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#DOUGLAS Q. ADAMS, 1972 (1981), Professor of English; Department Chair, 1996-(Secretary of the Faculty, 1992-96); A.B., 1968, A.M., 1971, Ph.D., 1972, Chicago.

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*CHARLES A. ALLEN, 1986, Affiliate Professor of Chemistry, Idaho Falls; B.S., 1962, Ottawa (Kansas); Ph.D., 1969, Oregon State.

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#JAMES ALVES-FOSS, 1991 (1998), Associate Professor of Computer Science; B.S., 1987; M.S., 1989, Ph.D., 1991, California (Davis).

DON A. AMOS, 1963, Business and Real Estate Manager Emeritus; B.S.Bus., 1952, Idaho. Emeritus since 1991.

*DOYLE E. ANDEREGG, 1967, Professor of Biology and Associate Dean Emeritus (Associate Dean, College of Letters and Science, 1989-99; Management Information Specialist; Assistant Dean, College of Letters and Science, 1981-89; Head, Department of Biological Sciences, 1967-75); B.Sc., 1952, M.S., 1957, Ph.D., 1959, Ohio State. Emeritus since 1999.

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*WILLIAM F. BARR, 1947 (1958), Professor of Entomology and Department Head Emeritus (Head, Department of Entomology, 1978-82); M.S., 1947, Ph.D., 1950, California (Berkeley). Emeritus since 1982.

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*LeROY O. BAUER, 1956 (1961), Professor Emeritus of Music; B.S.Mus.Ed., 1941, Wisconsin (Milwaukee); M.Mus., 1946, Northwestern. Emeritus since 1982.

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*THOMAS O. BELL, 1966-70, 1971 (1971), Professor of Education and Provost Emeritus (Interim President, 1995-96; Provost, 1991-94; Vice President for Academic Affairs and Research, 1984-91; Dean, College of Education, 1981-84; Associate Dean, College of Education, 1974-81; Director, Division of Teacher Education, 1971-81); B.S., 1953, M.S., 1957, Idaho State; Ed.D., 1966, Utah State. Emeritus since 1994.

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*RONALD D. BEVANS, 1970 (1977), Professor Emeritus of Architecture (Acting Dean, College of Art and Architecture, 1989-90; Associate Dean, 1981-89; Acting Department Chair, 1986-7; Department Chair, 1981-84); B.Arch., 1964, Nebraska; M.Arch., 1965, Washington (Seattle); R.A. Emeritus since 1999.

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Tollfree: (888) 884-3246

Further information may be obtained from the following offices. On campus, dial 5 and the number listed. Off campus, dial the prefix 885 and the number listed.

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Adult Education	Enrichment Program (112 Continuing Education Bldg.)	6486
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Intercollegiate	Athletic Department (Kibbie-ASUI Activity Ctr.)	0200
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